

**GRUNDIG**

**TVR-3805**

## SERVICING NOTICES ON CHECKING

### 1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

### 2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

### 3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.

Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a  mark, the designated parts must be used.

### 4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

### 5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

### 6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.

Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.

Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

### 7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

#### (INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the external exposure metal [Note 2] should be more than 1M ohm by using the 500V insulation resistance meter [Note 1].
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]  
If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]  
External exposure metal: Antenna terminal  
Earphone Jack

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## HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

### 1. MODEL NUMBER and VERSION LETTER

The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.

### 2. PART NO. and DESCRIPTION

You can find it in your SERVICE MANUAL.

## GENERAL SPECIFICATIONS

G-1	TV System	CRT	CRT Size / Visual Size	14 inch / 335.4mmV
		CRT Type	Normal	
		Deflection	90 degree	
		Magnetic Field	BV/BH	+0.45G / +0.18G
		Color System		PAL
		Speaker	1 Speaker	
		Position	Front	
		Size	1.5 x 2.5 inch	
		Impedance	8 ohm	
		Sound Output	MAX	1.5 W
			10% (Typical)	1.0 W
G-2	VCR System	System	VHS Player / Recorder	
		Video System	PAL	
		Hi-Fi STEREO	No	
		NTSC PB(PAL 60Hz)	Yes	
		Deck	DECK	OVD-7
			Loading System	Front
			Motor	3
		Heads	Video Head	2 Head
			FM Audio Head	No
			Audio / Control	Mono / Yes
			Erase(Full Track Erase)	Yes
		Tape Speed	Rec	PAL/SECAM
			NTSC	SP
			Play	PAL
			NTSC	SP
		Fast Forward / Rewind Time (Approx.)	FF:2'05"/REW:2'05"	
			at E-180	
		Forward/Reverse	NTSC or PAL-M	SP=3x,5x
		Picture Search	PAL or SECAM	SP=5x,7x
		Frame Advance		1/10
		Slow Speed		1/5~1/30
G-3	Tuning System	Broadcasting System	CCIR + Italy System B/G	
		Tuner and Receive CH	System	1 Tuner
			Destination	Oscar(W/HYPER)
			Tuning System	F-Synth
			Input Impedance	VHF/UHF 75 ohm
			CH Coverage	E2-E4, X-Z-2, S1-S10, E5-E12,S11-S41,E21-E69
		Intermediate Frequency	Picture(FP) Sound(FS)	38.9MHz 33.4MHz 5.5MHz
		Preset CH	FP-FS	80CH
		Stereo/Dual TV Sound		No
		Tuner Sound Muting		Yes
G-4	Signal	Video Signal	Input Level	1 V p-p/75 ohm
			Output Level	1 V p-p/75 ohm
		S/N Ratio (Weighted)	53 dB	
		Horizontal Resolution at SP Mode	240 Lines	
		Audio Signal	Input Level	-3.8dBm/50Kohm
			Output Level	-3.8dBm/1Kohm
		S/N Ratio at SP (Weighted)	42 dB	
		Harmonic Distortion at SP (1kHz)	Typical	1.5 %
			Frequency Response at SP	100Hz ~10kHz
			at LP	-
			at SLP	-
G-5	Power	Hi-Fi Audio Signal	Dynamic Range : More than	-
			Wow And Flutter : Less than	-
			Channel Separation : More than	-
			Harmonic Distortion : Less than	-
		Power Source	AC	230V 50Hz
G-6	Regulation		DC	-
		Power Consumption	at AC	50 W at 230 V 50 Hz
			at DC	-
		Stand by (at AC)		8 W at 230 V 50 Hz
		Per Year		-
G-7	Temperature	Protector	Power Fuse	Yes
			Dew Sensor	No
G-8	Operating Humidity	Safety	CE	
		Radiation	CE	
		X-Radiation	-	
G-9	On Screen Display	Operation	+5°C ~ +40°C	
		Storage	-20°C ~ -60°C	
G-10	OSD Language	Less than 80% RH		
G-11	Clock, Timer and Timer Back-up	OSD Language Setting	Eng Ger Fre Spa Ita	
		Calendar	Ita	
		Timer Events	1990/1/1 ~ 2081/12/31	
		One Touch Recording	8 prog/ 1 month	
		OTPB	SP 5 Hours	
		Valid Time	-	
		Sleep Timer	Max Time	
			120 min.	
		Step	10 min.	
		On/Off Timer	1 prog.	
G-12	Remote Control	Auto Shut Off	15 min.	
		No Signal	- min.	
		No Operation	30 min.	
		Timer Back-up (at Power Off Mode)	RC-CH	
			No	
		Glow in Dark Remote	3V	
		Power Source	UM size x pcs	
		Total Keys	36 Keys	
		Keys	Power	
			1	Yes
A3-1	A3-2		2	Yes
			3	Yes
			4	Yes
			5	Yes
			6	Yes
			7	Yes
			8	Yes
			9	Yes
			0/AV	Yes
			CH/Tr Up	No
A3-1	A3-2		CH/Tr Up/Page Up	Yes
			CH/Tr Down	No
			CH/Tr Down/Page Down	Yes
			Volume Up	Yes
			Volume Down	Yes

## GENERAL SPECIFICATIONS

G-9	On Screen Display	Menu	Yes	
		Type	Character	
		ATS	No	
		Timer Rec Set	Yes	
		Channel Setup	Yes	
		Auto Tuning	Yes	
		Ch Mapping	No	
		Ch Tuning	Yes	
		Ch Allocation	Yes	
		TV Setup	Yes	
G-10	OSD Language	On/Off Timer Sel	Yes	
		Picture	Yes	
		Audio	No	
		VCR Setup	Auto Repeat On/Off	
		System Select	Yes	
		Scene Repeat	No	
		System Setup	Yes	
		Clock Set	Yes (Calendar 24h)	
		Language	Yes	
		G-CODE(or SHOWVIEW or PLUSCODE)No. Entry	No	
G-11	Clock, Timer and Timer Back-up	Stereo/Audio Output	No	
		Bilingual	No	
		NICAM	No	
		Clock/Date	Yes	
		CH/AV	Yes	
		Tape Counter(Linear Counter)	Yes	
		Tape Speed	No	
		Sleep Time	Yes	
		Control	Volume	
		Level	Bright/Contrast/Sharpness/Color	
G-12	Remote Control	Tint	No	
		Bass/Treble/Balance	No	
		Manual Tracking	Yes	
		Play/Stop/FF/Rew/Rec/OTR/T-Rec/Pause/Eject/Tape In	Yes	
		Symbol Mark	Yes	
		Auto Tracking/Manual Tracking	Yes	
		S-Repeat/SR-R/SR-PLAY	No	
		Index	Yes	
		Mute	Yes	
		Hi-Fi	No	
A3-1	A3-2	Repeat	Yes	
		Zero Return	No	
		Dew	No	
		Unit	RC-CH	
		Glow in Dark Remote	No	
		Power Source	Voltage(D.C.)	
			3V	
		Total Keys	UM size x pcs	
		Keys	36 Keys	
			Power	
A3-2	A3-2		1	Yes
			2	Yes
			3	Yes
			4	Yes
			5	Yes
			6	Yes
			7	Yes
			8	Yes
			9	Yes
			0/AV	Yes

## GENERAL SPECIFICATIONS

	Play/Up	No
	Play/Up/Slow	Yes
	F.Fwd/Right	Yes
	Rew/Left	Yes
	Pause/Still	Yes
	Pause	No
	Stop/Down	Yes
	Rec/OTR	Yes
	Eject	Yes
	Counter Reset	Yes
	Speed	No
	Timer Rec	Yes
	TV Monitor	Yes
	TV Monitor / Rec Monitor	No
	Program	Yes
	Program V+	No
	Auto Tracking	No.
	Auto Tracking / Reveal	Yes
	Menu	Yes
	Enter	No.
	Enter/Hold	Yes
	Cancel/Ch Skip	No.
	Cancel/Ch Skip/F-T-B	Yes
	Index	No.
	Index / Sub Page	Yes
	Call	Yes
	Text/Mix/TV	Yes
	Sleep Timer	Yes
	Mute	Yes
	Zero Return	Yes
	CM Skip	No
	OTPB	No
	END Call	No
	Red	No
	Cyan	No
	Green	No
	Yellow	No
	Audio Select	No
G-13	Features	
	Auto Head Cleaning	Yes
	Auto Tracking	Yes
	HQ (VHS Standard High Quality)	Yes
	Auto Power On, Auto Play, Auto Rewind, Auto Eject	Yes
	Auto Shut Off	Yes
	Auto Repeat	Yes
	VIDEO PLUS+(SHOWVIEW/EW/G-CODE)	No
	CH Auto Set-Up/Auto Clock	No
	Forward / Reverse Picture Search	Yes
	One Touch Playback	No
	Auto Tuning	Yes
	Anti-Theft	No
	End Call	No
	Index Search	Yes
	SOPB	No
	CATV	No
	CM Skip(30sec x 6 Times)	No
	Comb Filter	No
	TText	Yes
	Text type	UNI Text
	Scene Repeat	No
	Hotel Lock	No
	TV Monitor	Yes
	Choke Coil	No
G-14	Accessories	
	Owner's Manual	Language w/Guarantee Card
		Italian No.
	Remote Control Unit	Yes
	Rod Antenna	Poles Terminal w/300 ohm to 75 ohm Antenna Adapter
		- - -
	Loop Antenna	Terminal
		-
	U/V Mixer	No
	DC Car Cord (Center+)	No
	Guarantee Card	Yes
	Warning Sheet	No
	Circuit Diagram	No
	Antenna Change Plug	No

## GENERAL SPECIFICATIONS

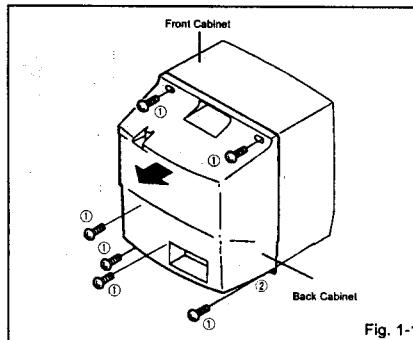
		Service Facility List	No
		Important Safeguard	No
		Dew/AHC Caution Sheet	No
		AC Plug Adapter	No
		Quick Set-up Sheet	No
		Battery	Yes UM size x pcs UM-4 x 2 pcs
		AC Cord	No
		AV Cord (2Pin-1Pin)	No
		21pin-RCA Cable	No
		Registration Card	No
		PTB Sheet	No
		Anti-Theft Sheet	No
		Euro Warranty Information Sheet	No
G-15	Interface	Switch	Front Power Yes Play Yes Pause/Still No System Select No One Touch Playback No Channel Up Yes Channel Down Yes F.FWD/Cue Yes Eject/Stop Yes Main Power SW Yes Volume Up Yes Volume Down Yes Rew/Rev Yes Rec/OTR Yes Rear Main Power SW No Indicator Standby Red Rec/OTR Red T-Rec Red On Timer No CS No Key Light up Rec/OTR No One Touch Playback No Play No Terminals Front Video Input RCA x1 Audio Input RCA x1 Other Terminal Head Phone(Stereo & Mono, 3.5mm) Rear Video Input No Audio Input No Video Output No Audio Output No Euro Scart 1-SCART Diversity No Ext Speaker No DC Jack 12V(Center +) No VHF/UHF Antenna Input DIN type AC Inlet No G-16 Set Size Approx. W x D x H (mm) 362 x 378.5 x 382 G-17 Weight Net (Approx.) 11.0 kg (- lbs) Gross (Approx.) 12.5 kg (- lbs) G-18 Carton Master Carton Content - Material - Dimensions W x D x H(mm) - Description of Origin - Gift Box Material Double/Brown Dimensions W x D x H(mm) 423 x 447 x 443 Design As per Buyer's Description of Origin No Drop Test Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces Height (cm) 62 Container Stuffing(40' container) 700 Sets G-19 Cabinet Material Cabinet Front PS 94HB Cabinet Rear PS 94HB Jack Panel PS 94V2

## DISASSEMBLY INSTRUCTIONS

### 1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

#### 1-1: BACK CABINET (Refer to Fig. 1-1)

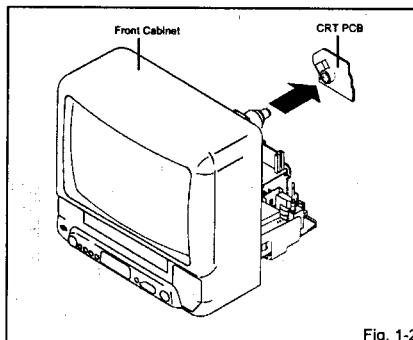
1. Remove the 6 screws ①.
2. Remove the AC cord from the AC cord hook ②.
3. Remove the Back Cabinet in the direction of arrow.



#### 1-2: CRT PCB (Refer to Fig. 1-2)

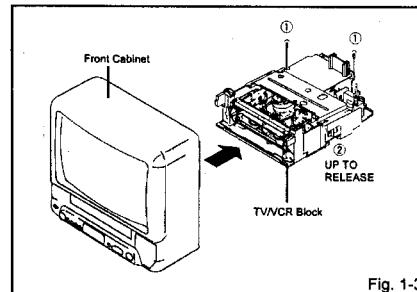
**CAUTION: BEFORE REMOVING THE ANODE CAP, DISCHARGE ELECTRICITY BECAUSE IT CONTAINS HIGH VOLTAGE.**  
**BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE AC SOURCE.**

1. Remove the Anode Cap.  
(Refer to REMOVAL OF ANODE CAP)
2. Remove the CRT PCB in the direction of arrow.



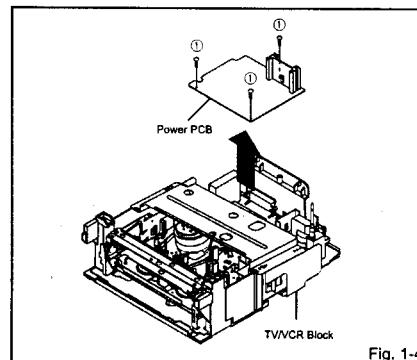
#### 1-3: TV/VCR BLOCK (Refer to Fig. 1-3)

1. Remove the 2 screws ①.
2. Disconnect the following connectors:  
(CP351, CP757, CP401, CP501 and CP502).
3. Unlock the support ②.
4. Remove the TV/VCR Block in the direction of arrow.



#### 1-4: POWER PCB (Refer to Fig. 1-4)

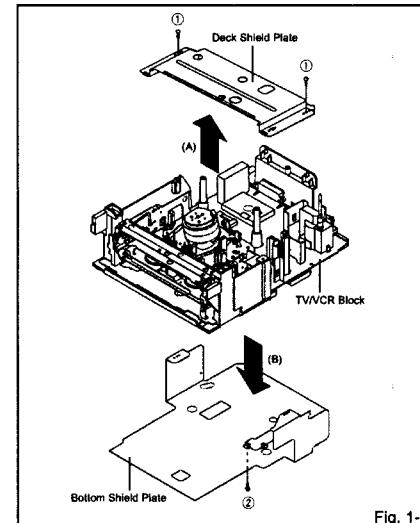
1. Remove the 3 screws ①.
2. Disconnect the following connectors:  
(CP401A and CP851A).
3. Remove the Power PCB in the direction of arrow.



## DISASSEMBLY INSTRUCTIONS

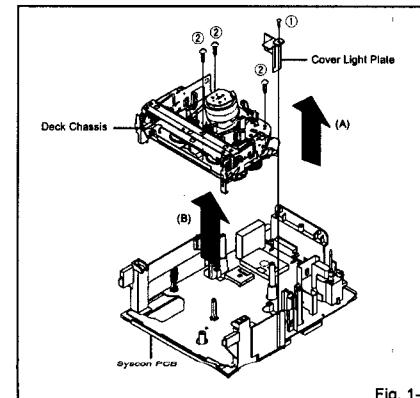
#### 1-5: DECK SHIELD PLATE (Refer to Fig. 1-5)

1. Remove the 2 screws ①.
2. Remove the Deck Shield Plate in the direction of arrow (A).
3. Remove the screw ②.
4. Remove the Bottom Shield Plate in the direction of arrow (B).



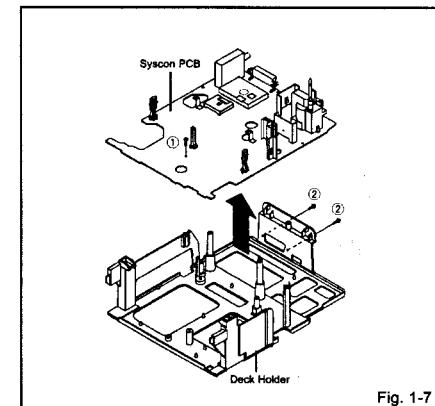
#### 1-6: DECK CHASSIS (Refer to Fig. 1-6)

1. Remove the screw ①.
2. Remove the Cover Light Plate in the direction of arrow (A).
3. Remove the 3 screws ②.
4. Disconnect the following connectors:  
(CP1001, CP4001, CP4004 and CP4005).
5. Remove the Deck Chassis in the direction of arrow (B).



#### 1-7: JACK PLATE AND SYSCON PCB (Refer to Fig. 1-7)

1. Remove the screw ①.
2. Remove the 2 screws ②.
3. Remove the Syscon PCB in the direction of arrow.



## DISASSEMBLY INSTRUCTIONS

### 2. REMOVAL OF DECK PARTS

#### 2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Extend the 2 supports ①.
2. Slide the 2 supports ② and remove the Top Bracket.

#### NOTE

1. After the installation of the Top Bracket, bend the support ① so that the Top Bracket is fixed.

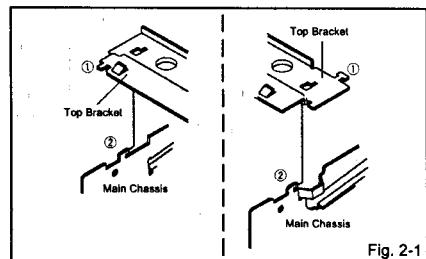


Fig. 2-1

#### 2-2: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'Y to the front side.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.

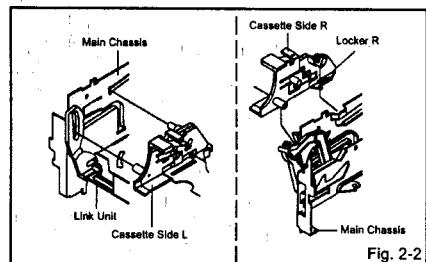


Fig. 2-2

#### 2-3: CASSETTE SIDE L/R (Refer to Fig. 2-3-A)

1. Remove the Locker Spring.
2. Unlock the 4 supports ① and then remove the Cassette Side L/R.
3. Unlock the support ② and then remove the Locker R.

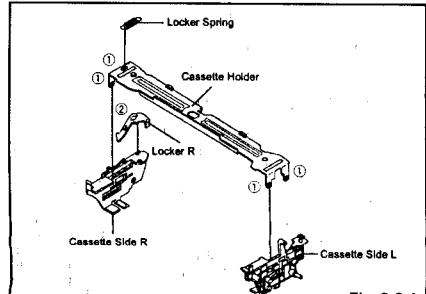


Fig. 2-3-A

#### NOTE

1. In case of the Locker R installation, check if the two positions of Fig. 2-3-B are correctly locked.
2. When you install the Cassette Side R, be sure to move the Locker R after installing.

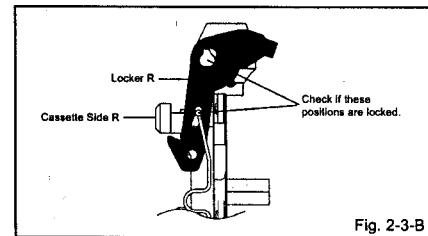


Fig. 2-3-B

#### 2-4: LINK UNIT (Refer to Fig. 2-4)

1. Set the Link Unit to the Eject position.
2. Unlock the support ①.
3. Remove the (A) side of the Link Unit first, then remove the (B) side.

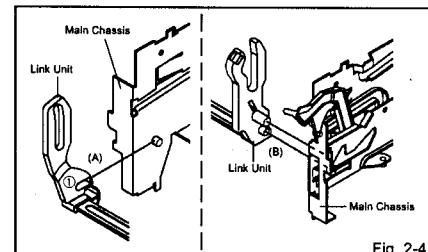


Fig. 2-4

#### 2-5: LINK LEVER/FLAP LEVER (Refer to Fig. 2-5)

1. Remove the Link Lever.
2. Remove the Flap Lever.

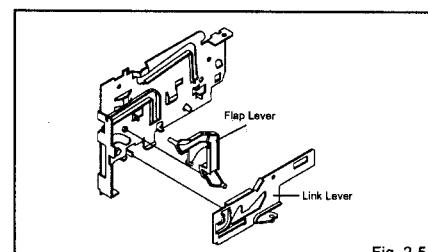


Fig. 2-5

## DISASSEMBLY INSTRUCTIONS

#### 2-6: LOADING MOTOR/WORM (Refer to Fig. 2-6-A)

1. Remove the screw ①.
2. Remove the Loading Motor.
3. Remove the Worm.

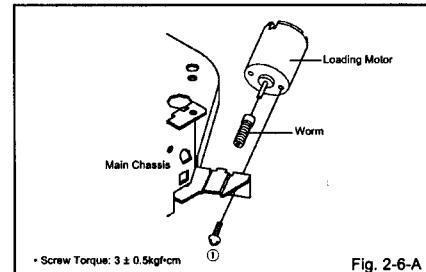


Fig. 2-6-A

#### NOTE

1. In case of the Worm installation, check if the value of the Fig. 2-6-B is correct.

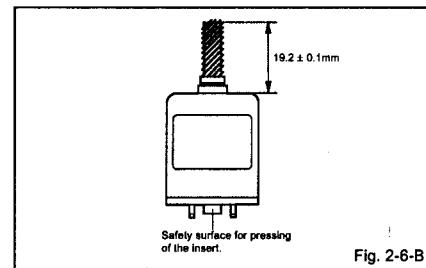


Fig. 2-6-B

#### 2-7: TENSION ASS'Y (Refer to Fig. 2-7-B)

1. Turn the Pinch Roller Cam clockwise so that the Tension Holder hook is set to the position of Fig. 2-7-A to move the Tension Arm Ass'y.
2. Remove the Tension Spring.
3. Unlock the 2 supports ① and remove the Tension Band.
4. Unlock the support ② and remove the Tension Arm Ass'y.
5. Unlock the support ③ and remove the Tension Connect.
6. Float the hook ④ and turn it clockwise then remove the Tension Holder.

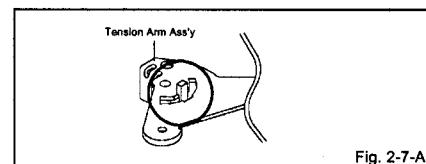


Fig. 2-7-A

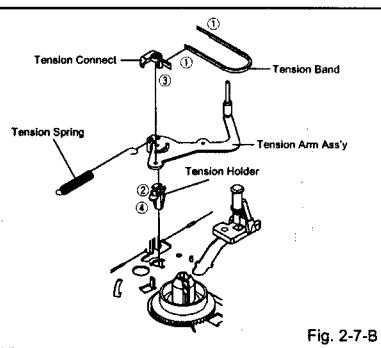


Fig. 2-7-B

#### NOTE

1. In case of the Tension Band installation, note the direction of the installation. (Refer to Fig. 2-7-C)
2. In case of the Tension Band installation, install correctly as Fig. 2-7-D.
3. In case of the Tension Connect installation, install as the circled section of Fig. 2-7-E.

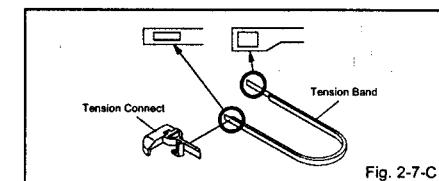


Fig. 2-7-C

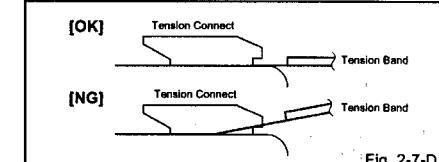


Fig. 2-7-D

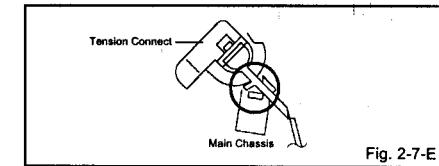


Fig. 2-7-E

## DISASSEMBLY INSTRUCTIONS

### 2-8: T BRAKE ARM/T BRAKE BAND (Refer to Fig. 2-8-A)

1. Remove the T Brake Spring.
2. Turn the T Brake Arm clockwise and bend the hook section to remove it.
3. Unlock the 2 supports ① and remove the T Brake Band.

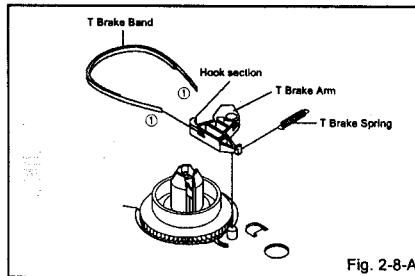


Fig. 2-8-A

#### NOTE

1. In case of the T Brake Band installation, install correctly as Fig. 2-8-B.

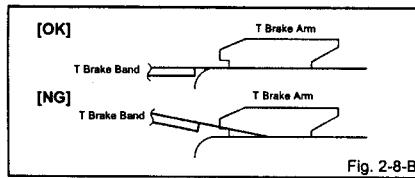


Fig. 2-8-B

### 2-9: S REEL/T REEL/IDLER ARM ASS'Y/IDLER GEAR (Refer to Fig. 2-9-A)

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.
3. Remove the Idler Arm Ass'Y and Idler Gear.

#### NOTE

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may be remained on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch the section "A" of S Reel and T Reel. (Use gloves.) (Refer to Fig. 2-9-A) Do not adhere the stains on it.
5. When you install the reel, clean the shaft and grease it (MG-33). (If you do not grease, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. (Refer to MECHANICAL ADJUSTMENT)

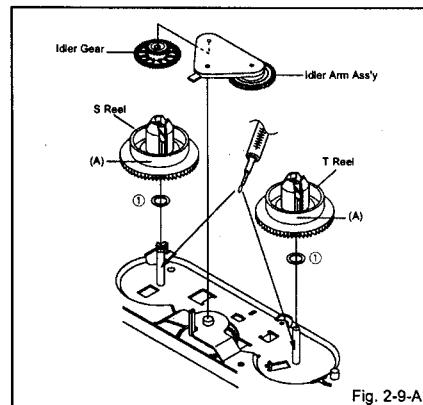


Fig. 2-9-A

#### NOTE

1. In case of the S Reel and T Reel installation, check if the correct parts are installed. (Refer to Fig. 2-9-B)
2. In case of the Idler Arm Ass'Y installation, install correctly as Fig. 2-9-C.

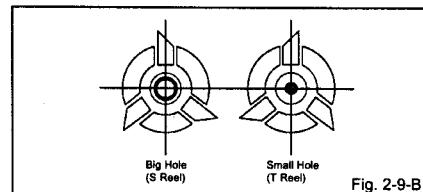


Fig. 2-9-B

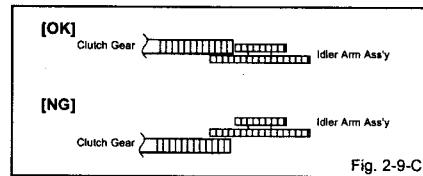


Fig. 2-9-C

## DISASSEMBLY INSTRUCTIONS

### 2-10: CASSETTE OPENER/PINCH ROLLER BLOCK/P5 ARM ASS'Y (Refer to Fig. 2-10-A)

1. Unlock the support ① and remove the Cassette Opener.
2. Remove the Pinch Roller Block and P5 Arm Ass'Y.

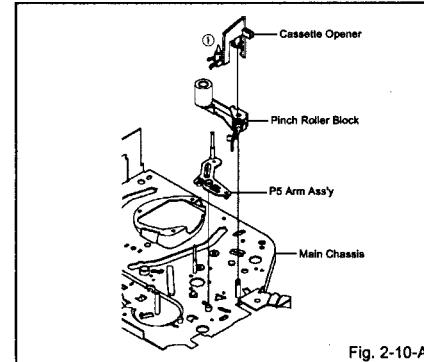


Fig. 2-10-A

#### NOTE

1. Do not touch the Pinch Roller. (Use gloves.)
2. In case of the Pinch Roller Block and the Pinch Roller Cam installation, install correctly as Fig. 2-10-B.

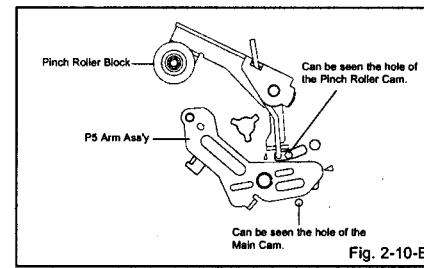


Fig. 2-10-B

### 2-11: A/C HEAD (Refer to Fig. 2-11-A)

1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

#### NOTE

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-11-B.
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).

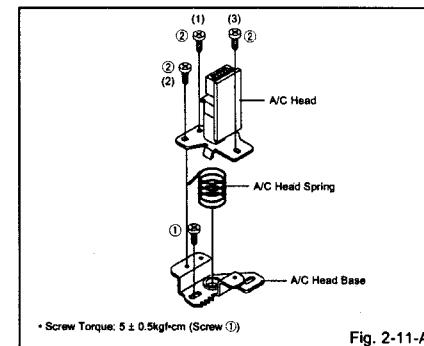


Fig. 2-11-A

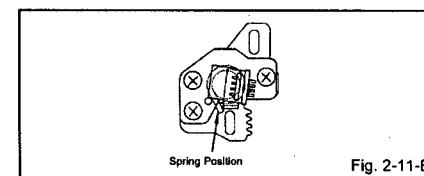


Fig. 2-11-B

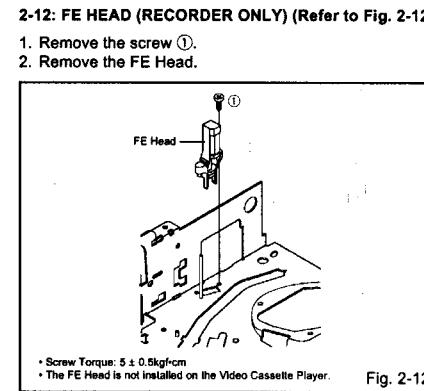


Fig. 2-12

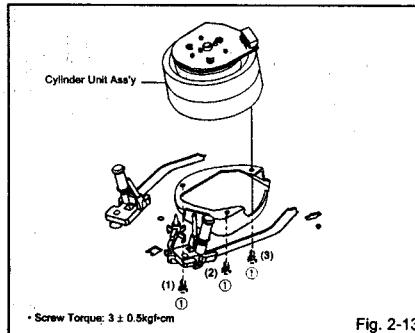
## DISASSEMBLY INSTRUCTIONS

### 2-13: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-13)

1. Disconnect the following connector: (CD2001)
2. Remove the 3 screws ①.
3. Remove the Cylinder Unit Ass'y.

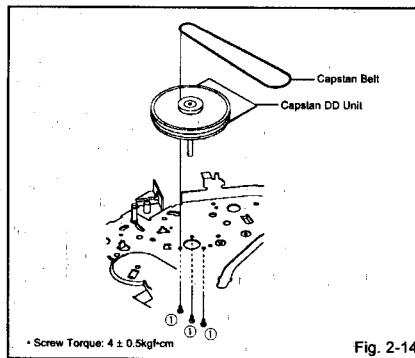
#### NOTE

1. When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.



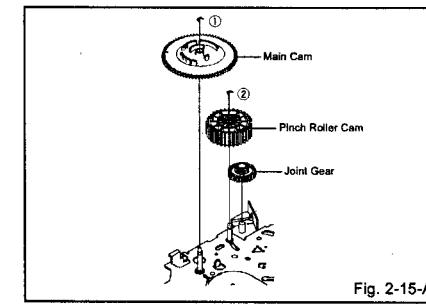
### 2-14: CAPSTAN DD UNIT (Refer to Fig. 2-14)

1. Remove the Capstan Belt.
2. Remove the 3 screws ①.
3. Remove the Capstan DD Unit.



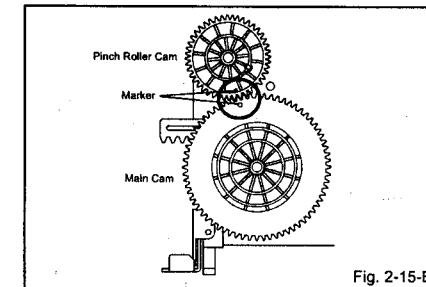
### 2-15: MAIN CAM/PINCH ROLLER CAM/JOINT GEAR (Refer to Fig. 2-15-A)

1. Remove the E-Ring ①, then remove the Main Cam.
2. Remove the E-Ring ②, then remove the Pinch Roller Cam and Joint Gear.



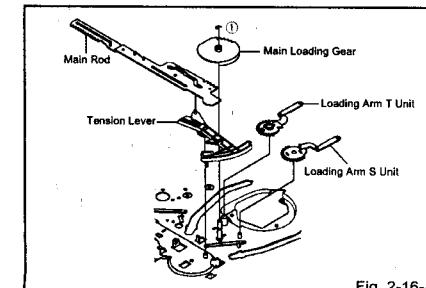
#### NOTE

1. In case of the Pinch Roller Cam and Main Cam installation, install them as the circled section of Fig. 2-15-B so that the each markers are met. (Refer to Fig. 2-15-B)



### 2-16: LOADING GEAR S/T UNIT (Refer to Fig. 2-16-A)

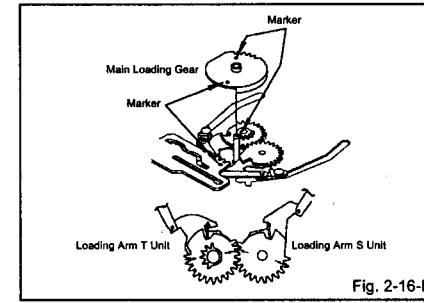
1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Main Rod, Tension Lever, Loading Arm S Unit and Loading Arm T Unit.



## DISASSEMBLY INSTRUCTIONS

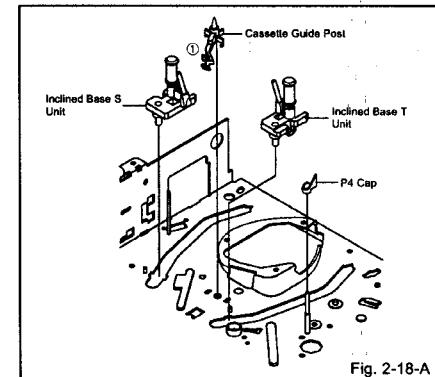
### NOTE

1. When you install the Loading Arm S Unit, Loading Arm T Unit and Main Loading Gear, align each marker. (Refer to Fig. 2-16-B)



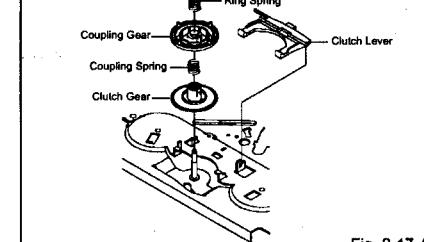
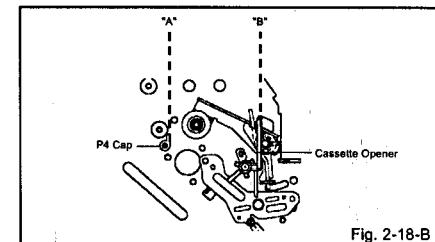
### 2-18: CASSETTE GUIDE POST/INCLINED BASE S/T UNIT/P4 CAP (Refer to Fig. 2-18-A)

1. Remove the P4 Cap.
2. Unlock the support ① and remove the Cassette Guide Post.
3. Remove the Inclined Base S Unit and Inclined Base T Unit.



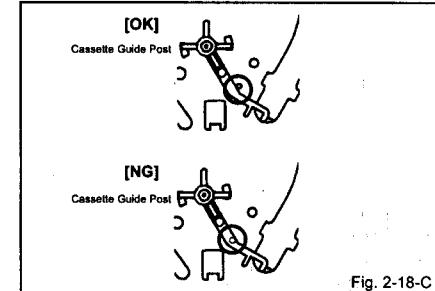
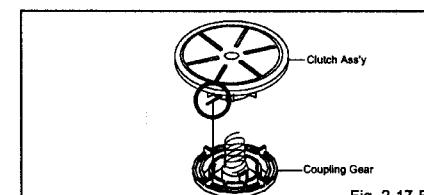
#### NOTE

1. Do not touch the roller of Guide Roller.
2. In case of the P4 Cap installation, install it with parallel for "A" and "B" of Fig. 2-18-B.
3. In case of the Cassette Guide Post installation, install correctly as the circled section of Fig. 2-18-C.



#### NOTE

1. In case of the Clutch Ass'y installation, install it with inserting the spring of the Clutch Ass'y into the dent of the Coupling Gear. (Refer to Fig. 2-17-B)



## DISASSEMBLY INSTRUCTIONS

### 3. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

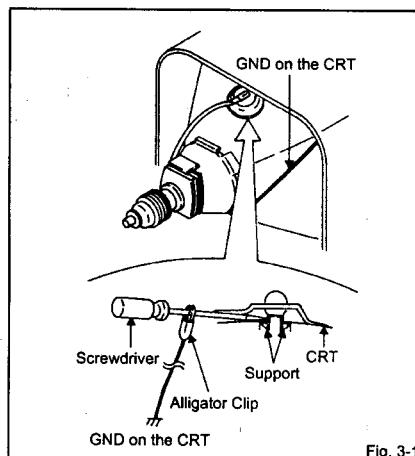
- After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
- Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

#### REMOVAL

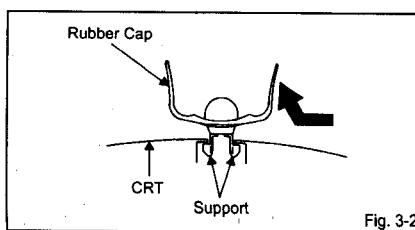
- Follow the steps as follows to discharge the Anode Cap. (Refer to Fig. 3-1.)

Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground. While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver.

A cracking noise will be heard as the voltage is discharged.



- Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. (Refer to Fig. 3-2.)



- After one side is removed, pull in the opposite direction to remove the other.

#### NOTE

Take care not to damage the Rubber Cap.

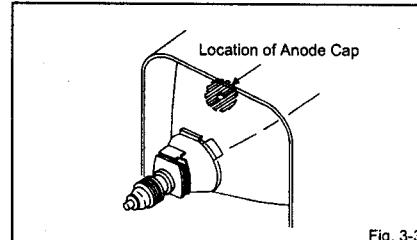
#### INSTALLATION

- Clean the spot where the cap was located with a small amount of alcohol. (Refer to Fig. 3-3.)

#### NOTE

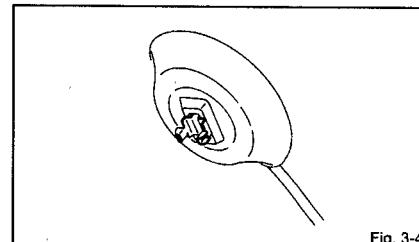
Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

#### Fig. 3-3

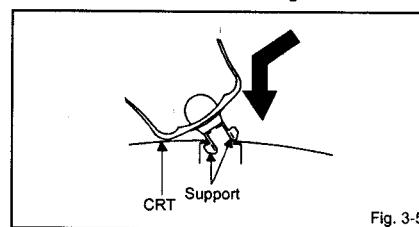


- Arrange the wire of the Anode Cap and make sure the wire is not twisted.

- Turn over the Rubber Cap. (Refer to Fig. 3-4.)



- Insert one end of the Anode Support into the anode button, then the other as shown in Fig. 3-5.



- Confirm that the Support is securely connected.
- Put on the Rubber Cap without moving any parts.

## DISASSEMBLY INSTRUCTIONS

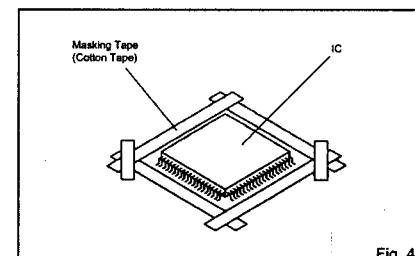
### 4. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

#### REMOVAL

- Put the Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. (Refer to Fig. 4-1.)

#### NOTE

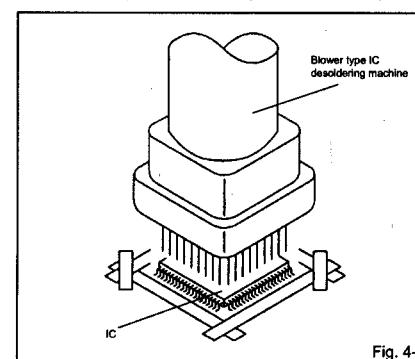
Masking is carried out on all the parts located within 10 mm distance from IC leads.



- Heat the IC leads using a blower type IC desoldering machine. (Refer to Fig. 4-2.)

#### NOTE

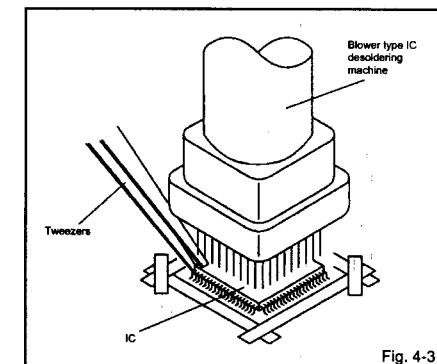
Do not add the rotating and the back and forth directions force on the IC, until IC can move back and forth easily after desoldering the IC leads completely.



- When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. (Refer to Fig. 4-3.)

#### NOTE

Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.

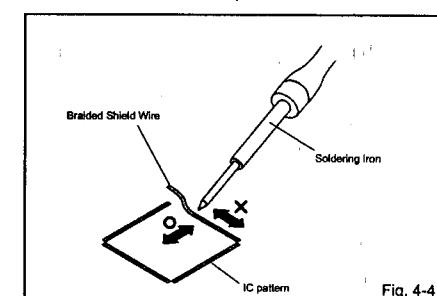


- Peel off the Masking Tape.

- Absorb the solder left on the pattern using the Braided Shield Wire. (Refer to Fig. 4-4.)

#### NOTE

Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.



## DISASSEMBLY INSTRUCTIONS

### INSTALLATION

- Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. (Refer to Fig. 4-5.)

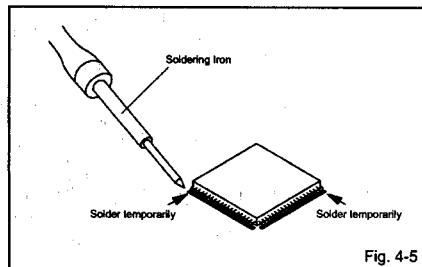


Fig. 4-5

- Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. (Refer to Fig. 4-6.)

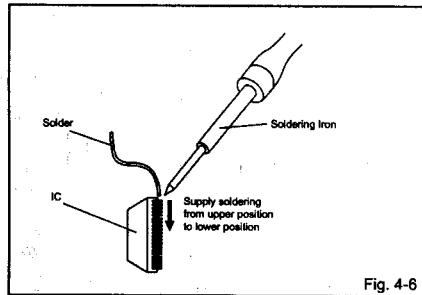


Fig. 4-6

- Absorb the solder left on the lead using the Braided Shield Wire. (Refer to Fig. 4-7.)

#### NOTE

Do not absorb the solder to excess.

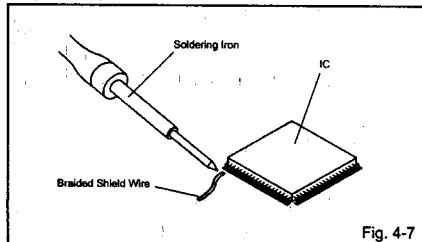


Fig. 4-7

- When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. (Refer to Fig. 4-8.)

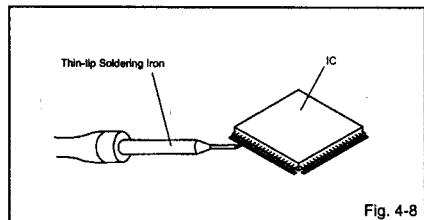


Fig. 4-8

- Finally, confirm the soldering status on four sides of the IC using a magnifying glass. Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

#### NOTE

When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, be always sure to replace the IC in this case.

## KEY TO ABBREVIATIONS

<b>A</b>	<b>A/C</b>	: Audio/Control	<b>H.SW</b>	: Head Switch
	<b>ACC</b>	: Automatic Color Control	<b>Hz</b>	: Hertz
	<b>AE</b>	: Audio Erase	<b>I</b>	: Integrated Circuit
	<b>AFC</b>	: Automatic Frequency Control	<b>IF</b>	: Intermediate Frequency
	<b>AFT</b>	: Automatic Fine Tuning	<b>IND</b>	: Indicator
	<b>AFT DET</b>	: Automatic Fine Tuning Detect	<b>INV</b>	: Inverter
	<b>AGC</b>	: Automatic Gain Control	<b>K</b>	: Killer
	<b>AMP</b>	: Amplifier	<b>KIL</b>	: Left
	<b>ANT</b>	: Antenna	<b>L</b>	: Light Emitting Diode
	<b>A.PB</b>	: Audio Playback	<b>LED</b>	: Limiter Amplifier
	<b>APC</b>	: Automatic Phase Control	<b>LIMIT AMP</b>	: Loading Motor
	<b>ASS'Y</b>	: Assembly	<b>LM, LDM</b>	: Long Play
	<b>AT</b>	: All Time	<b>LP</b>	: Low Pass Filter
	<b>AUTO</b>	: Automatic	<b>L.P.F</b>	: Luminance
	<b>A/V</b>	: Audio/Video	<b>LUMI.</b>	: Motor
<b>B</b>	<b>BGP</b>	: Burst Gate Pulse	<b>M</b>	: Maximum
	<b>BOT</b>	: Beginning of Tape	<b>MAX</b>	: Minimum
	<b>BPF</b>	: Bandpass Filter	<b>MINI</b>	: Mixer, mixing
	<b>BRAKE SOL</b>	: Brake Solenoid	<b>MIX</b>	: Monostable Multivibrator
	<b>BUFF</b>	: Buffer	<b>MM</b>	: Modulator, Modulation
	<b>B/W</b>	: Black and White	<b>MOD</b>	: Multiplexer, Multiplex
<b>C</b>	<b>CASE</b>	: Capacitance, Collector	<b>MPX</b>	: Mecha State Switch
	<b>CAP</b>	: Cassette	<b>MS SW</b>	: Non Connection
	<b>CARR</b>	: Capstan	<b>N</b>	: Noise Reduction
	<b>CH</b>	: Carrier	<b>NC</b>	: Oscillator
	<b>CLK</b>	: Channel	<b>NR</b>	: Operation
	<b>CLOCK (SY-SE)</b>	: Clock	<b>O</b>	: Playback
	<b>COMB</b>	: Clock (Syscon to Servo)	<b>OSC</b>	: Playback Control
	<b>CONV</b>	: Combination, Comb Filter	<b>OPE</b>	: Playback-Chrominance
	<b>CPM</b>	: Converter	<b>P</b>	: Playback-Luminance
	<b>CTL</b>	: Capstan Motor	<b>PB</b>	: Printed Circuit Board
	<b>CYL</b>	: Control	<b>PB CTL</b>	: Power Control
	<b>CYL-M</b>	: Cylinder	<b>PB-C</b>	: Phase Detector
	<b>CYL SENS</b>	: Cylinder-Motor	<b>PB-Y</b>	: Pulse Generator
<b>D</b>	<b>DATA (SY-CE)</b>	: Cylinder-Sensor	<b>P</b>	: Peak-to Peak
	<b>dB</b>	: Data (Syscon to Servo)	<b>R</b>	: Right
	<b>DC</b>	: Decibel	<b>REC</b>	: Recording
	<b>DD Unit</b>	: Direct Current	<b>REC-C</b>	: Recording-Chrominance
	<b>DEMOD</b>	: Direct Drive Motor Unit	<b>REC-Y</b>	: Recording-Luminance
	<b>DET</b>	: Demodulator	<b>REEL BRK</b>	: Reel Brake
	<b>DEV</b>	: Detector	<b>REEL S</b>	: Reel Sensor
<b>E</b>	<b>E</b>	: Deviation	<b>REF</b>	: Reference
	<b>EF</b>	: Emitter	<b>REG</b>	: Regulated, Regulator
	<b>EMPH</b>	: Emitter Follower	<b>REW</b>	: Rewind
	<b>ENC</b>	: Emphasis	<b>REV, RVS</b>	: Reverse
	<b>ENV</b>	: Encoder	<b>RF</b>	: Radio Frequency
	<b>EOT</b>	: Envelope	<b>RMC</b>	: Remote Control
	<b>EQ</b>	: End of Tape	<b>RY</b>	: Relay
	<b>EXT</b>	: Equalizer	<b>S</b>	: Serial Clock
<b>F</b>	<b>F</b>	: External	<b>S.COM</b>	: Sensor Common
	<b>FBC</b>	: Fuse	<b>S.DATA</b>	: Serial Data
	<b>FE</b>	: Feed Back Clamp	<b>SEG</b>	: Segment
	<b>FF</b>	: Full Erase	<b>SEL</b>	: Select, Selector
	<b>FG</b>	: Fast Forward, Flipflop	<b>SENS</b>	: Sensor
	<b>FL SW</b>	: Frequency Generator	<b>SER</b>	: Search Mode
	<b>FM</b>	: Front Loading Switch	<b>SI</b>	: Serial Input
	<b>FSC</b>	: Frequency Modulation	<b>SIF</b>	: Sound Intermediate Frequency
	<b>FWD</b>	: Frequency Sub Carrier	<b>SO</b>	: Serial Output
<b>G</b>	<b>GEN</b>	: Forward	<b>SOL</b>	: Solenoid
	<b>GND</b>	: Generator	<b>SP</b>	: Standard Play
	<b>H.P.F</b>	: Ground	<b>STB</b>	: Serial Strobe
		: High Pass Filter	<b>SW</b>	: Switch

## KEY TO ABBREVIATIONS

<b>S</b>	<b>SYNC</b>
	Synchronization
	Sync Separator, Separation
<b>T</b>	<b>TR</b>
	Transistor
	Tracking
	Trick Playback
	Test Point
<b>U</b>	<b>UNREG</b>
	Unregulated
<b>V</b>	<b>V</b>
	Volt
	VCO
	VIF
	VP
	V.PB
	VR
	V.REC
	VSF
	VSR
	VSS
	V-SYNC
	VT
<b>X</b>	<b>X'TAL</b>
<b>Y</b>	<b>Y/C</b>

## SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.

To enter SERVICE MODE, Unplug AC cord till lost actual clock time. Then press and hold Vol (-) button of main unit and remocon key for more than 2 seconds.

The both pressing of set key and remote control key will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 30 minutes before Power On or alternatively, discharge backup capacitor.

Set Key	Remocon Key	Operations
VOL. (-) MIN	1	Initialization of the factory. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	2	Horizontal position adjustment of OSD. NOTE: Also can be adjusted by using the Adjustment MENU. Refer to the "ELECTRICAL ADJUSTMENT" (OSD HORIZONTAL).
VOL. (-) MIN	3	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	4	Adjust the PG SHIFTER manually. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	5	Adjusting of the Tracking to the center position. NOTE: Also can be adjusted by pressing the ATR button for more than 2 seconds during PLAY.
VOL. (-) MIN	6	POWER ON total hours and PLAY/REC total hours are displayed on the screen. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF HOURS USED ).  Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
VOL. (-) MIN	7	Releasing of PROTECTION PASSWORD.
VOL. (-) MIN	8	Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

Method	Operations
Press the ATR button on the remote control for more than 2 seconds during PLAY.	Adjusting of the Tracking to the center position. Refer to the "MECHANICAL ADJUSTMENT" (GUIDE ROLLER) and "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
Make the short circuit between the test point of SERVICE and the GND.	The EOT/BOT/Reel sensor do not work at this moment. Refer to the "PREPARATION FOR SERVICING".

## PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage. Unless maintenance is properly carried out, the following service intervals may be quite shortened as harmful effects may be had on other parts. Also, long term storage or misuse may cause transformation and aging of rubber parts.

Parts Name	Time 500 hours	1,000 hours	1,500 hours	2,000 hours	3,000 hours	Notes
Audio Control Head	■	■	■	■	■	
Full Erase Head (Recorder only)	■	■	■	■	■	Clean those parts in contact with the tape.
Capstan Belt			■	■	●	Clean the rubber, and parts which the rubber touches.
Pinch Roller	■	■	■	■	●	
Capstan DD Unit					●	
Loading Motor					●	
Tension Band					●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	■	■	■	●	Clean the Head

■ : Clean  
● : Replace

## CONFIRMATION OF HOURS USED

POWER ON total hours and PLAY/REC total hours can be checked on the screen.  
Total hours are displayed in 16 system of notation.

**NOTE:** The confirmation of using hours will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 30 minutes before Power On or alternatively, discharge backup capacitor.

1. Set the VOLUME to minimum.
2. Press both VOL. DOWN button on the set and the Channel button (6) on the remote control for more than 2 seconds.
3. After the confirmation of using hours, turn off the power.

INIT 0B4 00	Initial setting content of MEMORY IC.
POWER ON 0000	POWER ON total hours.
PLAY/REC 0000	PLAY/REC total hours.

(16 x 16 x 16 x thousands digit value) + (16 x 16 x hundreds digit value) + (16 x tens digit value) + (ones digit value)

## PREVENTIVE CHECKS AND SERVICE INTERVALS

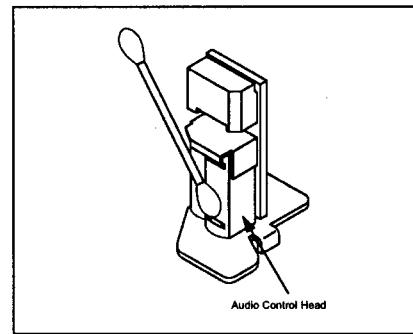
### CLEANING

#### NOTE

After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

#### 1. AUDIO CONTROL HEAD

Clean the Audio Control Head with the cotton stick soaked by alcohol. Clean the full erase head in the same manner. (Refer to the figure below.)



#### 2. TAPE RUNNING SYSTEM

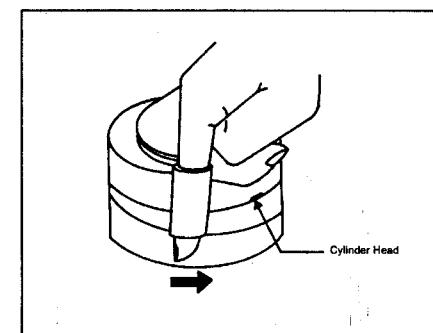
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

#### 3. CYLINDER

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). (Refer to the figure below.)

#### NOTE

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head. Use the chamois one by one.



## WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

**NOTE:** Initial Data setting will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 30 minutes before Power On or alternatively, discharge backup capacitor.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
0B0	--	--	--	--	00	05	30	00	C0	8C	00	ED	C0	E1	81	02
0C0	00	27	98	A3	00	05	63	65	66	47	1B	3B	32	17	19	1B
0D0	3A	0F	4B	20	44	63	6B	65	64	EA	00	F5	77	50	68	5F
0E0	0F	00	11	F3	5F	0F	30	05	F3	60	99	B2	9A	97	8C	B2
0F0	A0	C4	20	08	BF	10	00	00	00	00	00	00	00	00	00	00
100	27	03	07	15	F3	00	23	42	20	11	F0	02	09	00	82	10
110	00	07	04	00	40	20	20	00	00	40	00	00	00	00	00	00
120	25	27	29	2B	2D	2F	31	33	35	37	3A	3D	40	43	46	49
130	4C	4F	52	55	57	59	5B	5D	5F	61	63	65	67	69	6B	6D
140	6F	71	73	76	79	7C	7F	82	85	88	8B	8E	91	94	97	9A
150	9D	A0	A5	AA	AF	B4	B9	BE	C3	C8	CD	D2	D9	E1	F0	FF

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control for more than 2 seconds. ADDRESS and DATA should appear as FIG 1.

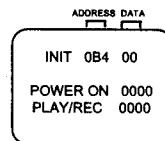


Fig. 1

3. ADDRESS is now selected and should "blink". Using the PLAY or STOP button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using PLAY or STOP button until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input. The unit will now have the correct DATA for the new MEMORY IC.

## SERVICING FIXTURES AND TOOLS

(For 2 head 1 speed model, 4 head model) VHS Alignment Tape JG001E (VP <sub>2</sub> -S-L16 <sup>3</sup> ) JG001F (VP <sub>2</sub> -S-CO1 <sup>3</sup> ) JG001R (VP <sub>2</sub> -S-L16 <sup>3</sup> H) JG001U (VP <sub>2</sub> -S-X6 <sup>3</sup> )	(For 2 head 2 speed model) VHS Alignment Tape JG001C (VP <sub>2</sub> -S-L16 <sup>3</sup> ) JG001D (VP <sub>2</sub> -S-CO1 <sup>3</sup> ) JG001V (VP <sub>2</sub> -S-X6 <sup>3</sup> )	JG002B Adapter JG002E Dial Torque Gauge (10~90gf·cm) JG002F (60~600gf·cm)	JG005 Post Adjustment Screwdriver Part No. SV-TG0-030-000 (small)
JG153 X Value Adjustment Screwdriver	JG022 Master Plane	JG024A Reel Disk Height Adjustment Jig	JG100A Torque Tape (VHT-063)
JG154 Cable	Tentelometer		

Ref. No.	Part No.	Parts Name	Remarks
JG001E	APJG001E00	VHS Alignment Tape	Monoscope, 6KHz (For 2 head 1 speed model, 4 head model)
JG001F	APJG001F00	VHS Alignment Tape	Color Bar, 1KHz (For 2 head 1 speed model, 4 head model)
JG001R	APJG001R00	VHS Alignment Tape	Hi-Fi Audio (For Hi-Fi model)
JG001U	APJG001U00	VHS Alignment Tape	X Value Adjustment (For 2 head 1 speed model, 4 head model)
JG001C	APJG001C00	VHS Alignment Tape	Monoscope, 6KHz (For 2 head 2 speed model)
JG001D	APJG001D00	VHS Alignment Tape	Color Bar, 1KHz (For 2 head 2 speed model)
JG001V	APJG001V00	VHS Alignment Tape	X Value Adjustment (For 2 head 2 speed model)
JG002B	APJG002B00	Adapter	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
JG002E	APJG002E00	Dial Torque Gauge (10~90gf·cm)	Brake Torque (T Reel Ass'y)
JG002F	APJG002F00	Dial Torque Gauge (60~600gf·cm)	VSR Torque, Brake Torque (S Reel)
JG005	APJG005000	Post Adjustment Screwdriver	Guide Roller Adjustment
JG153	APJG153000	X Value Adjustment Screwdriver	X Value Adjustment
JG022	APJG022000	Master Plane	Reel Disk Height Adjustment
JG024A	APJG024A00	Reel Disk Height Adjustment Jig	Reel Disk Height Adjustment
JG100A	APJG100A00	Torque Tape (VHT-063)	Playback Torque, Back Tension Torque During Playback
JG154	APJG154000	Cable	Used to connect the test point of SERVICE and GROUND

## PREPARATION FOR SERVICING

### How to use the Servicing Fixture

1. Unplug the connector CP351 and CP757 then remove the TV/VCR Block from the set.
2. Remove the Operation PCB from the set, then connect it with the Syscon PCB. If necessary, connect CD351.
3. Short circuit between TP1001 and Ground with the cable JG154. (Refer to MAJOR COMPONENTS LOCATION GUIDE)
4. The EOT, BOT and Reel Sensor do not work at this moment. At that time, the STOP/EJECT button is available to insert and eject the Cassette Tape.

## MECHANICAL ADJUSTMENTS

### 1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)
- When you activate the deck without the Cassette Holder, short circuit between TP1001 and GND. (Refer to ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE) In this condition the BOT/EOT/Reel Sensor will not function.

### 1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

1. Turn on the power and set to the STOP mode.
2. Set the master plane (JG022) and reel disk height adjustment jig (JG024A) on the mechanism framework, taking care not to scratch the drum, as shown in Fig. 1-1-A.
3. While turning the reel and confirm the following points. Check if the surface "A" of reel disk is lower than the surface "B" of reel disk height adjustment jig (JG024A) and is higher than the surface "C". If it is not passed, place the height adjustment washers and adjust to  $10(+2,-0)$ mm.
4. Adjust the other reel in the same way.

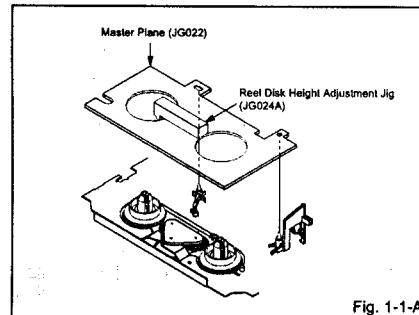


Fig. 1-1-A

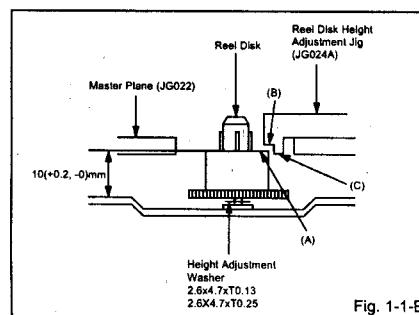


Fig. 1-1-B

### 1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

1. Set to the PLAY mode.
2. Adjust the adjusting parts for the Tension Arm position so that the Tension Arm top is within the standard line of Main Chassis.
3. While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

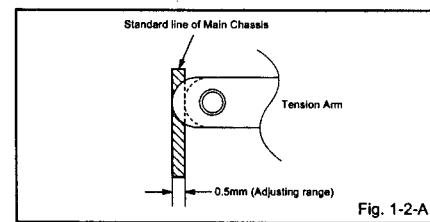


Fig. 1-2-A

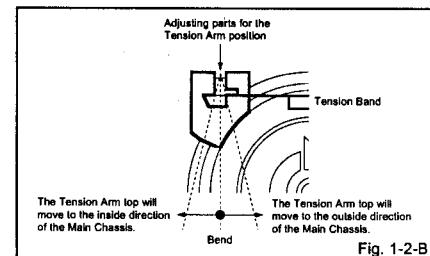


Fig. 1-2-B

### 1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

1. Load a video tape (E-180) recorded in standard speed mode. Set the unit to the PLAY mode.
2. Install the tensiometer as shown in Fig. 1-3. Confirm that the meter indicates  $20 \pm 2$ gf in the beginning of playback.
- USING A CASSETTE TYPE TORQUE TAPE (JG100A)
  1. After confirmation and adjustment of Tension Post position (Refer to item 1-2), load the cassette type torque tape (JG100A) and set to the PLAY mode.
  2. Confirm that the right meter of the torque tape indicates 50~90gf·cm during playback in SP mode.
  3. Confirm that the left meter of the torque tape indicates 25~40gf·cm during playback in SP mode.

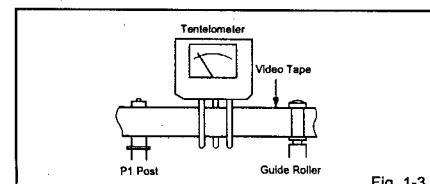


Fig. 1-3

## MECHANICAL ADJUSTMENTS

### 1-4: CONFIRMATION OF VSR TORQUE

1. Install the Torque Gauge (JG002F) and Adapter (JG002B) on the S Reel. Set to the Picture Search (Rewind) mode. (Refer to Fig. 1-4-B)
2. Then, confirm that it indicates 120~180gf·cm.

#### NOTE

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

### 1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) (Refer to Fig. 1-4-B)

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of Fig. 1-4-A.
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge (JG002F) and Adapter (JG002B) on the S Reel. Turn the Torque Gauge (JG002F) clockwise.
4. Then, confirm that it indicates 60~100gf·cm.

(T Reel Brake) (Refer to Fig. 1-4-B)

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of Fig. 1-4-A.
2. Move the Idler Ass'y from the T Reel.
3. Install the Torque Gauge (JG002E) and Adapter (JG002B) on the T reel. Turn the Torque Gauge (JG002E) counterclockwise.
4. Then, confirm that it indicates 30~50gf·cm.

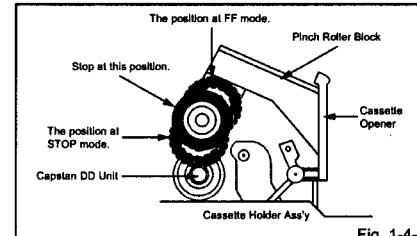


Fig. 1-4-A

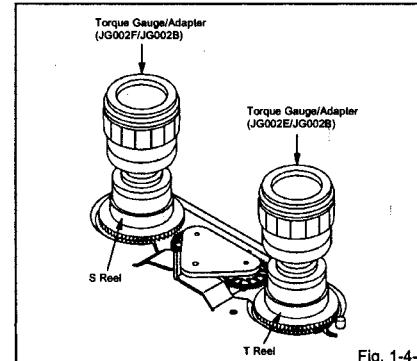


Fig. 1-4-B

#### NOTE

If the torque is out of the range, replace the following parts.

Check item	Replacement Part
1-4	Idler Ass'y/Clutch Ass'y
1-5	S Reel side: S Reel/Tension Band/Tension Connect/Tension Arm Ass'y T Reel side: T Reel/T Brake Band/T Brake Spring/T Brake Arm

### 2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

#### 2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape (JG001C or JG001E). (Refer to SERVICING FIXTURE AND TOOLS)
2. Connect CH-1 of the oscilloscope to TP4002 (Envelope) and CH-2 to TP4001 (SW Pulse).
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. (Refer to Fig. 2-1-A)
5. When observing the envelope, adjust the Adjusting Driver (JG005) slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in Fig. 2-1-B, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback. (Refer to the ELECTRICAL ADJUSTMENTS)

#### NOTE

After adjustment, confirm and adjust A/C head. (Refer to item 2-2)

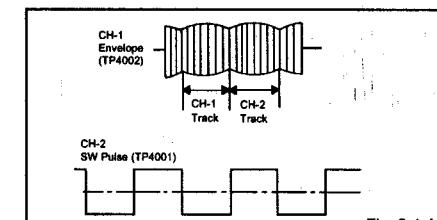


Fig. 2-1-A

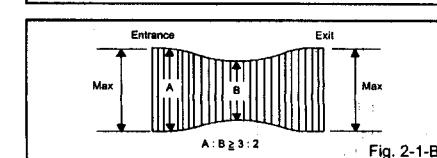


Fig. 2-1-B

## MECHANICAL ADJUSTMENTS

### 2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/CONTROL HEAD

When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape (JG001C or JG001E). (Refer to SERVICING FIXTURE AND TOOLS)
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Post as shown in Fig. 2-2-A.
- a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
- b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/ Control Head and the bottom of the tape is shown in Fig. 2-2-C.
- c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.

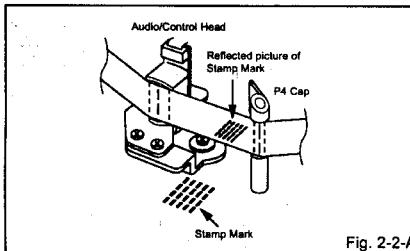


Fig. 2-2-A

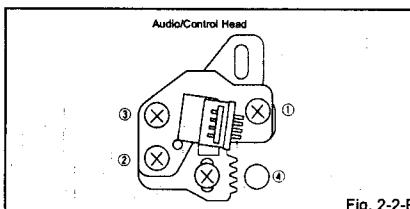


Fig. 2-2-B

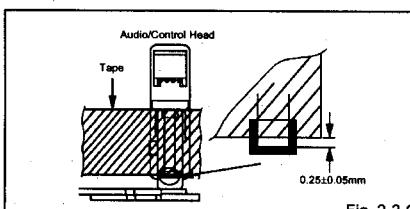
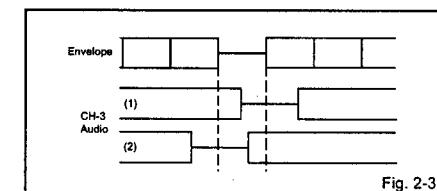


Fig. 2-2-C

### 2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

1. Confirm and adjust the height of the Reel Disk. (Refer to item 1-1)
2. Confirm and adjust the position of the Tension Post. (Refer to item 1-2)
3. Adjust the Guide Roller. (Refer to item 2-1)
4. Confirm and adjust the Audio/Control Head. (Refer to item 2-2)
5. Connect CH-1 of the oscilloscope to TP4001, CH-2 to TP4002 and CH-3 to HOT side of Audio Out Jack.
6. Playback the VHS Alignment Tape (JG001U or JG001V). (Refer to SERVICING FIXTURE AND TOOLS)
7. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver (JG153) to the ④ of Fig. 2-2-B. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of Fig. 2-3.

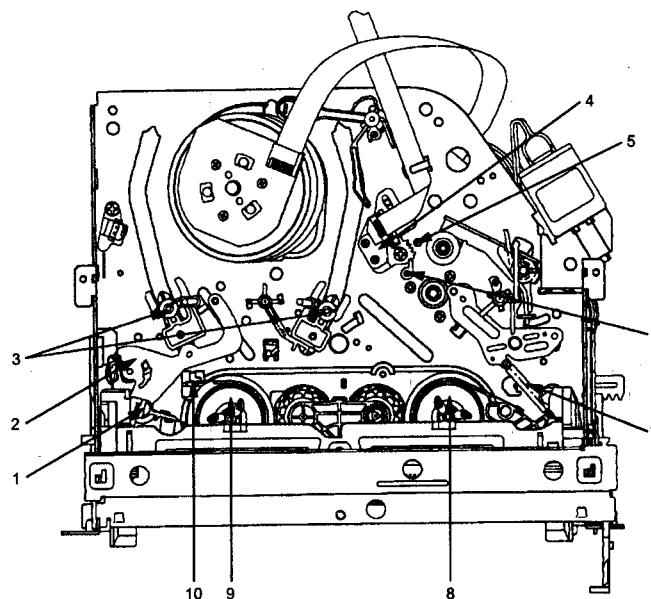


### 2-4: CONFIRM HI-FI AUDIO (HI-FI model only)

1. Connect CH-1 of the oscilloscope to TP4002 and CH-2 to the Hi-Fi Audio Out Jack.
2. Playback the VHS Alignment Tape (JG001R). (Refer to SERVICING FIXTURE AND TOOLS)
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press the Tracking Up button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
5. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
6. Press the Tracking Down button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
7. If the difference are more than 3 steps, set the X Value adjustment driver (JG153) to ④ of Fig. 2-2-B. Change the X Value and adjust it so that the value becomes within 2 steps.

## MECHANICAL ADJUSTMENTS

### 3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



1. Tension Connect	6. P4 Post
2. Tension Arm	7. T Brake Spring
3. Guide Roller	8. T Reel
4. Audio/Control Head	9. S Reel
5. X value adjustment driver hole	10. Adjusting parts for the Tension Arm position

## ELECTRICAL ADJUSTMENTS

### 1. ADJUSTMENT PROCEDURE

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

#### CAUTION

When replacing IC's or transistors, use only specified silicon grease (VG6260M).

(To prevent the damage to IC's and transistors.)

#### On-Screen Display Adjustment

- Unplug the AC plug for more than 30 minutes to set the clock to the non-setting state. (To release the Back-Up immediately, take the short circuit between C1003 and GND at the Power Off.) Then, set the volume level to minimum.
- Press the VOL. DOWN button on the set and the channel button (9) on the remote control for more than 2 seconds to display adjustment mode on the screen as shown in Fig. 1-1.

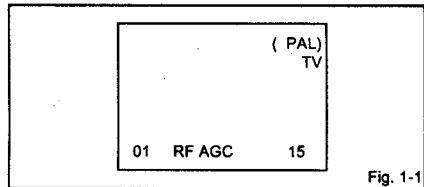


Fig. 1-1

- Use the Channel UP/DOWN button or Channel button (0-9) on the remote control to select the options shown in Fig. 1-2.
- Press the MENU button on the remote control to end the adjustments.

NO.	FUNCTION	NO. FUNCTION
00	CUT OFF	20 CONTRAST CENT
01	RF AGC	21 CONTRAST MAX
02	AGC GAIN	22 CONTRAST MIN
03	R DRIVE	23 COLOR CENT
04	R CUTOFF	24 COLOR MAX
05	G DRIVE	25 COLOR MIN
06	G CUTOFF	26 TINT
07	B DRIVE	27 SHARP
08	H POSI	28 M R CUT OFF
09	V POSI	29 M G CUT OFF
10	---	30 M B CUT OFF
11	V SIZE	31 H POS OSD
12	---	32 ---
13	VCO COARSE	33 ---
14	VCO FINE	34 ---
15	VCO COARSE L1	35 CVBS OUT
16	VCO FINE L1	36 APR THRESHOLD
17	BRIGHT CENT	37 BELL FILTER
18	BRIGHT MAX	38 BANDPASS
19	BRIGHT MIN	

Fig. 1-2

### 2. BASIC ADJUSTMENTS

#### (VCR SECTION)

##### 2-1: PG SHIFTER

- Connect CH-1 on the oscilloscope to TP4001 and CH-2 to TP4201.
- Playback the alignment tape. (JG001F)
- Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
- Press the VOL. DOWN button on the set and the channel button (3) on the remote control simultaneously until the indicator REC disappears. If the indicator REC disappears, adjustment is completed.

(If the above adjustments doesn't work well:)

- Press the VOL. DOWN button on the set and the channel button (3) on the remote control simultaneously until the indicator REC disappears.
- When the REC indicator is blinking, press both VOL. DOWN button on the set and the channel button (4) on the remote control simultaneously and adjust the Tracking +/- button until the arising to the down of Head Switching Pulse becomes  $6.5 \pm 0.5$ Hz. (Refer to Fig. 2-1-A, B)
- Stop the alignment tape.

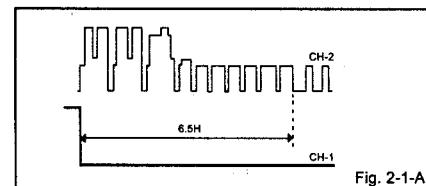


Fig. 2-1-A

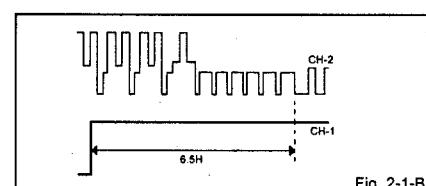


Fig. 2-1-B

##### 2-2: VCO

- Place the set with Aging Test for more than 10 minutes.
- Connect the oscillator (38.9MHz) to TP601.
- Activate the adjustment mode display of Fig. 1-1 and press the channel button (13) on the remote control to select "VCO COARSE".
- Press the VOL. UP/DOWN button on the remote control until the "OK" appear on the screen. If the "OK" is not displayed, select the "-" side on the changed from "+" to "-".
- Press the CH UP button once to set to "VCO FINE" mode.
- Press the VOL. UP/DOWN button on the remote control to select the 5 step down point from the upper limit on the "OK".

(Example: In case of the "OK" point 30~41, select 36.)

## ELECTRICAL ADJUSTMENTS

### 2-3: RF AGC

- Place the set with Aging Test for more than 15 minutes.
- Receive the UHF (63dB).
- Connect the digital voltmeter between the pin 5 of CP603 and the pin 1 (GND) of CP603.
- Activate the adjustment mode display of Fig. 1-1 and press the channel button (01) on the remote control to select "RF AGC".
- Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is  $2.4 \pm 0.1$ V.

#### (TV SECTION)

##### 2-4: CONSTANT VOLTAGE

- Connect the digital voltmeter to TP501.
- Set condition is AV MODE without signal.
- Using the remote control, set the brightness and contrast to normal position.
- Adjust the VR502 until the digital voltmeter is  $135 \pm 0.5$ V.

##### 2-5: FOCUS

- Receive the monoscope pattern.
- Turn the Focus Volume fully counterclockwise once.
- Adjust the Focus Volume until picture is distinct.

##### 2-6: HORIZONTAL POSITION

- Receive the center cross signal from the Pattern Generator.
- Using the remote control, set the brightness and contrast to normal position.
- Activate the adjustment mode display of Fig. 1-1 and press the channel button (08) on the remote control to select "H POSI (50)".
- Press the VOL. UP/DOWN button on the remote control until the right and left screen size of the vertical line becomes the same.
- Receive the cross hatch signal of NTSC. (Audio Video Input)
- Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.

##### 2-7: VERTICAL POSITION

NOTE: Adjust after performing adjustments in section 2-6.

- Receive the cross hatch signal from the Pattern Generator.
- Using the remote control, set the brightness and contrast to normal position.
- Activate the adjustment mode display of Fig. 1-1 and press the channel button (09) on the remote control to select "V POSI (50)".
- Check if the step No. V.POSI (50) is "5".
- Adjust the VR402 until the horizontal line becomes fit to notch of the shadow mask.
- Receive the cross hatch signal of NTSC. (Audio Video Input)
- Using the remote control, set the brightness and contrast to normal position.
- Activate the adjustment mode display of Fig. 1-1 and press the channel button (09) on the remote control to select "V POSI (60)".
- Check if the step No. V.POSI (60) is "15".

### 2-8: VERTICAL LINEARITY

NOTE: Adjust after performing adjustments in section 2-7.

- Receive the cross hatch signal from the Pattern Generator.
- Using the remote control, set the brightness and contrast to normal position.
- Adjust the VR401 until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

##### 2-9: VERTICAL SIZE

NOTE: Adjust after performing adjustments in section 2-8.

- Receive the cross hatch signal from the Pattern Generator.
- Using the remote control, set the brightness and contrast to normal position.
- Activate the adjustment mode display of Fig. 1-1 and press the channel button (11) on the remote control to select "V SIZE (50)".
- Press the VOL. UP/DOWN button on the remote control until the rectangle on the center of the screen becomes square.
- Receive a broadcast and check if the picture is normal.
- Receive the cross hatch signal of NTSC. (Audio Video Input)
- Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.

##### 2-10: OSD HORIZONTAL

- Using the remote control, set the brightness and contrast to normal position.
- Activate the adjustment mode display of Fig. 1-1 and press the channel button (31) on the remote control to select "H POS OSD".
- Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. (Refer to Fig. 2-2)

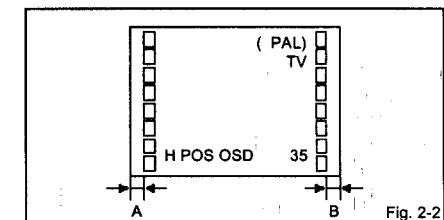


Fig. 2-2

##### 2-11: CUT OFF

- Set condition is AV MODE without signal.
- Using the remote control, set the brightness and contrast to normal position.
- Place the set with Aging Test for more than 15 minutes.
- Activate the adjustment mode display of Fig. 1-1 and press the channel button (00) on the remote control to select "CUT OFF".
- Adjust the Screen Volume until a dim raster is obtained.

## ELECTRICAL ADJUSTMENTS

### 2-12: WHITE BALANCE

**NOTE:** Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the white 100% signal from the Pattern Generator.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of Fig. 1-1 and press the channel button (03) on the remote control to select "R DRIVE".
5. Using the VOL. UP/DOWN button on the remote control, adjust the R DRIVE.
6. Press the CH. UP/DOWN button on the remote control to select the "R DRIVE", "G DRIVE", "M R CUTOFF" or "M G CUTOFF".
7. Using the VOL. UP/DOWN button on the remote control, adjust the R DRIVE, G DRIVE, M R CUTOFF or M G CUTOFF.
8. Perform the above adjustments 6 and 7 until the white color is looked like a white.

### 2-13: BRIGHT CENT

1. Receive the PAL black pattern\*. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of Fig. 1-1 and press the channel button (17) on the remote control to select "BRIGHT CENT".
4. Press the VOL. UP/DOWN button on the remote control until the screen begin to shine.
5. Receive the PAL black pattern\*. (Audio Video Input)
6. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.

\* The Black Pattern means the whole black raster signal. Select the "RASTER" of the pattern generator, set to the OFF position for each R, G and B.

### 2-14: CONTRAST CENT

1. Activate the adjustment mode display of Fig. 1-1 and press the channel button (20) on the remote control to select "CONTRAST CENT".
2. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "24".
3. Press the AV button on the remote control to set to the AV mode.
4. Activate the adjustment mode display of Fig. 1-1 and press the channel button (20) on the remote control to select "CONTRAST CENT".
5. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "24".

### 2-15: SUB SHARPNESS

1. Activate the adjustment mode display of Fig. 1-1 and press the channel button (27) on the remote control to select "SHARPNESS".
2. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "5".
3. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 1~3.

### 2-17: COLOR CENT

1. Receive the PAL color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast and color to normal position.
3. Connect the oscilloscope to TP803.
4. Activate the adjustment mode display of Fig. 1-1 and press the channel button (23) on the remote control to select "COLOR CENT".
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
6. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to  $90 \pm 5\%$  of the white level. (Refer to Fig. 2-3)
7. Receive the PAL color bar pattern. (Audio Video Input)
8. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~6.

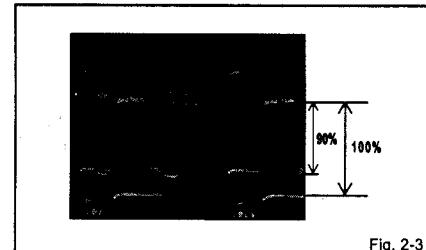


Fig. 2-3

### 2-18: Confirmation of Fixed Value (Step No.)

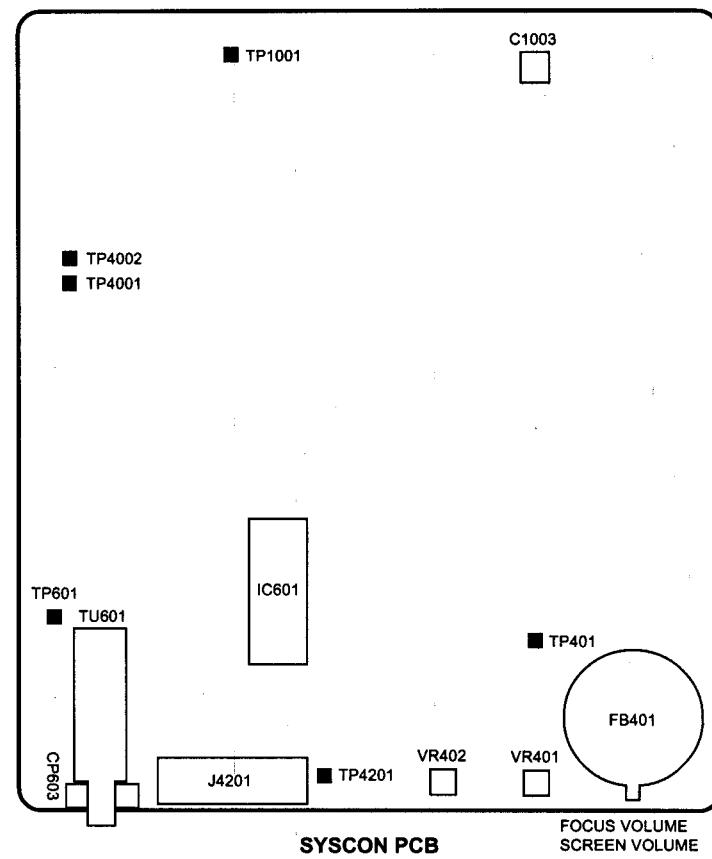
Please check if the fixed values of the each adjustment items are set correctly referring below.

NO. FUNCTION	RF (50Hz)	RF (60Hz)	AV
02 AGC GAIN	00	---	---
04 R CUTOFF	31	---	---
06 G CUTOFF	31	---	---
07 B DRIVE	31	---	---
15 VCO COARSE L1	00	---	---
16 VCO FINE L1	00	---	---
18 BRIGHT MAX	55	---	---
19 BRIGHT MIN	20	---	---
21 CONTRAST MAX	40	---	---
22 CONTRAST MIN	10	---	---
24 COLOR MAX	60	---	---
25 COLOR MIN	10	---	---
27 SHARP	05	---	05
30 M B CUT OFF	50	---	---
35 CVBS OUT	10	---	---
36 APR THRESHOLD	15	---	---
37 BELL FILTER	00	---	---
38 BANDPASS	00	---	---

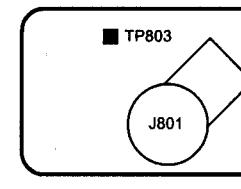
\* To check for the fixed values of the RF (60Hz), indicate the adjustment mode screen while input the 60Hz video signal.

## ELECTRICAL ADJUSTMENTS

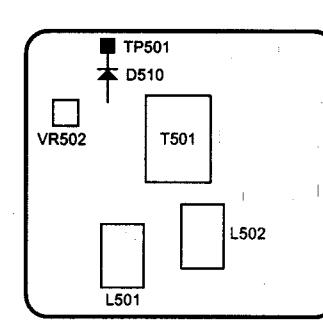
### 3. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE



SYSCON PCB



CRT PCB



POWER PCB

## ELECTRICAL ADJUSTMENTS

### 4. PURITY AND CONVERGENCE ADJUSTMENTS

#### NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

**4-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)**

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. (Refer to Fig. 4-1)  
If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

### 4-2: PURITY

#### NOTE

Adjust after performing adjustments in section 4-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.  
Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue color.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

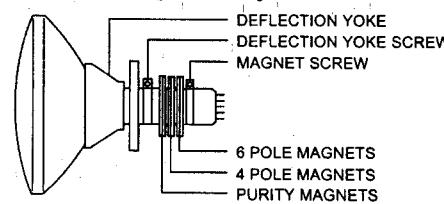


Fig. 4-1

### 4-3: STATIC CONVERGENCE ADJUSTMENT

#### NOTE

Adjust after performing adjustments in section 4-2.

1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

### 4-4: DYNAMIC CONVERGENCE

#### NOTE

Adjust after performing adjustments in section 4-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. (Refer to Fig. 4-2-a)
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. (Refer to Fig. 4-2-b)

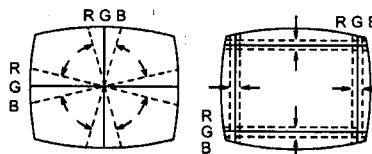


Fig. 4-2-a

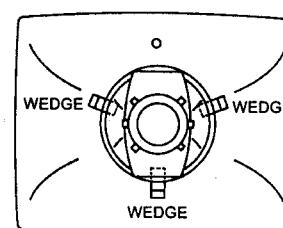
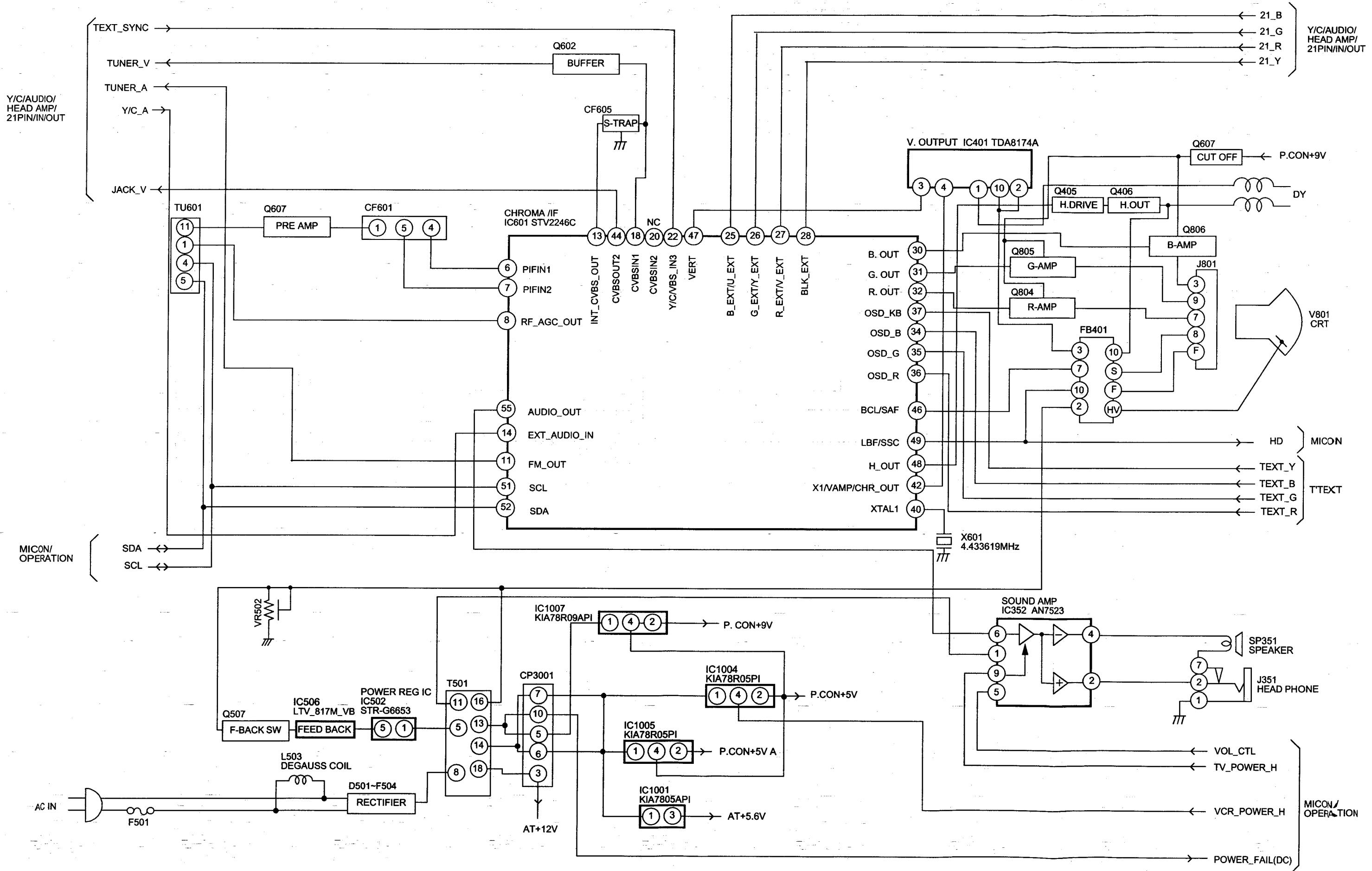
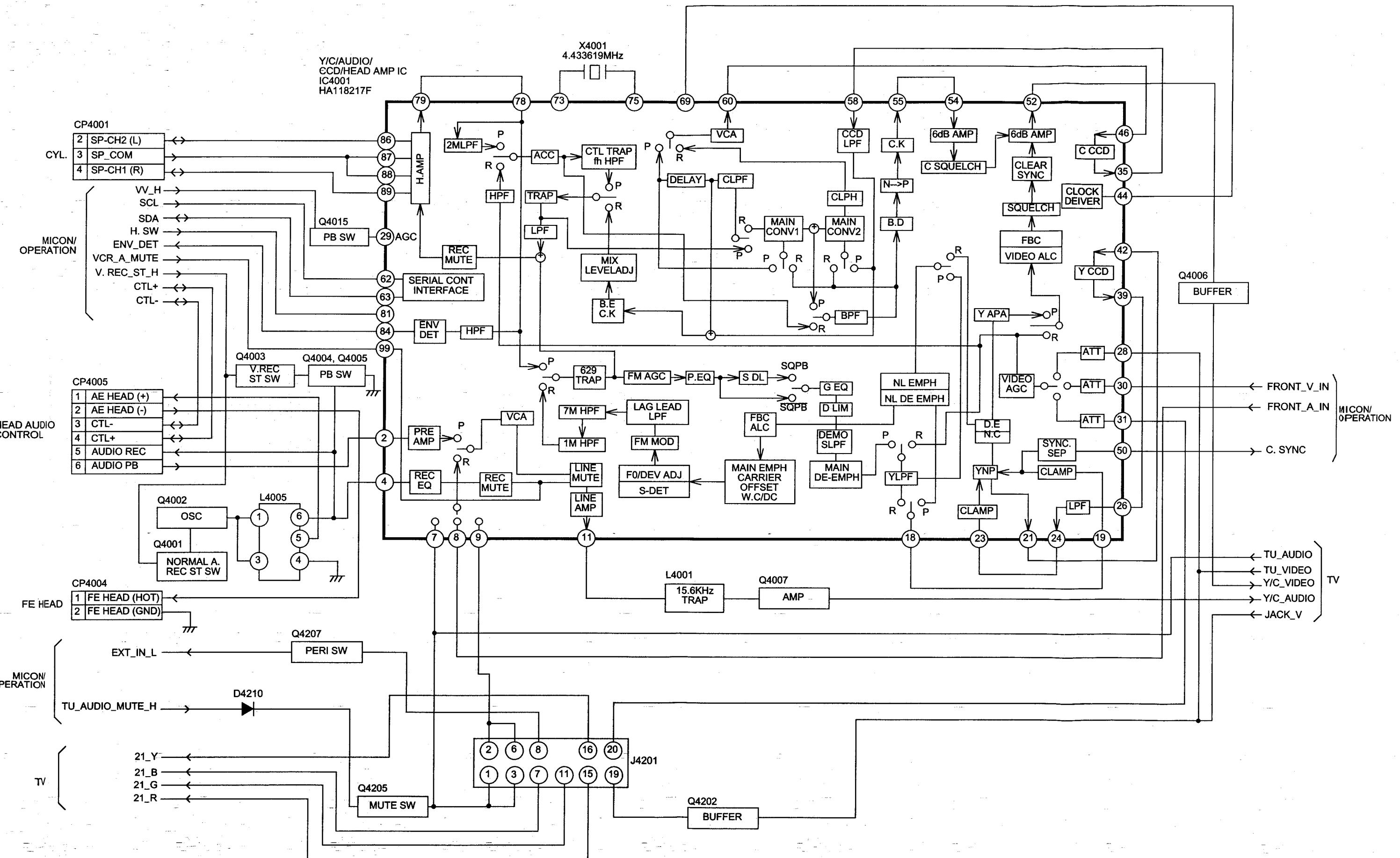


Fig. 4-2-b

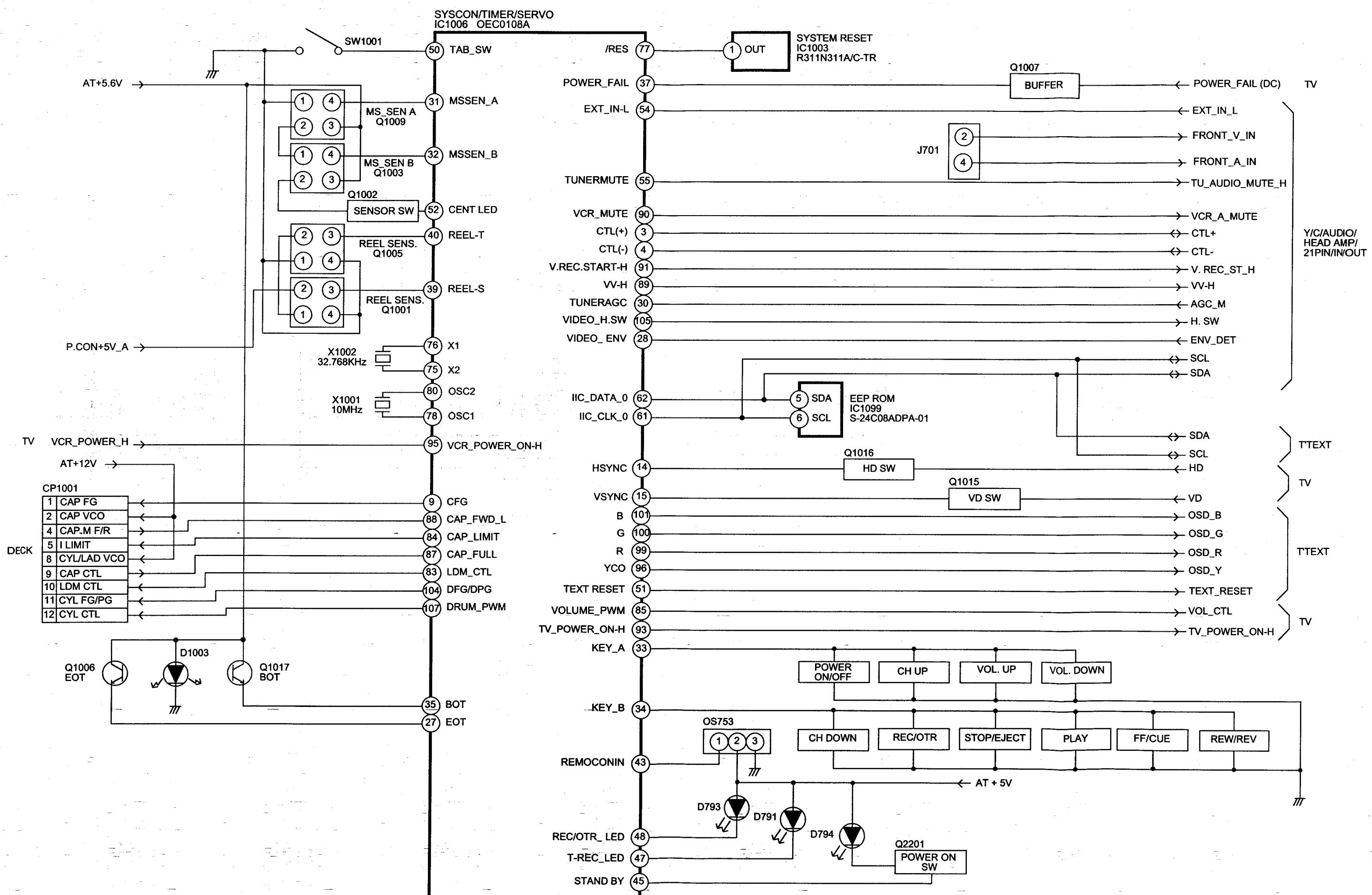
## TV BLOCK DIAGRAM



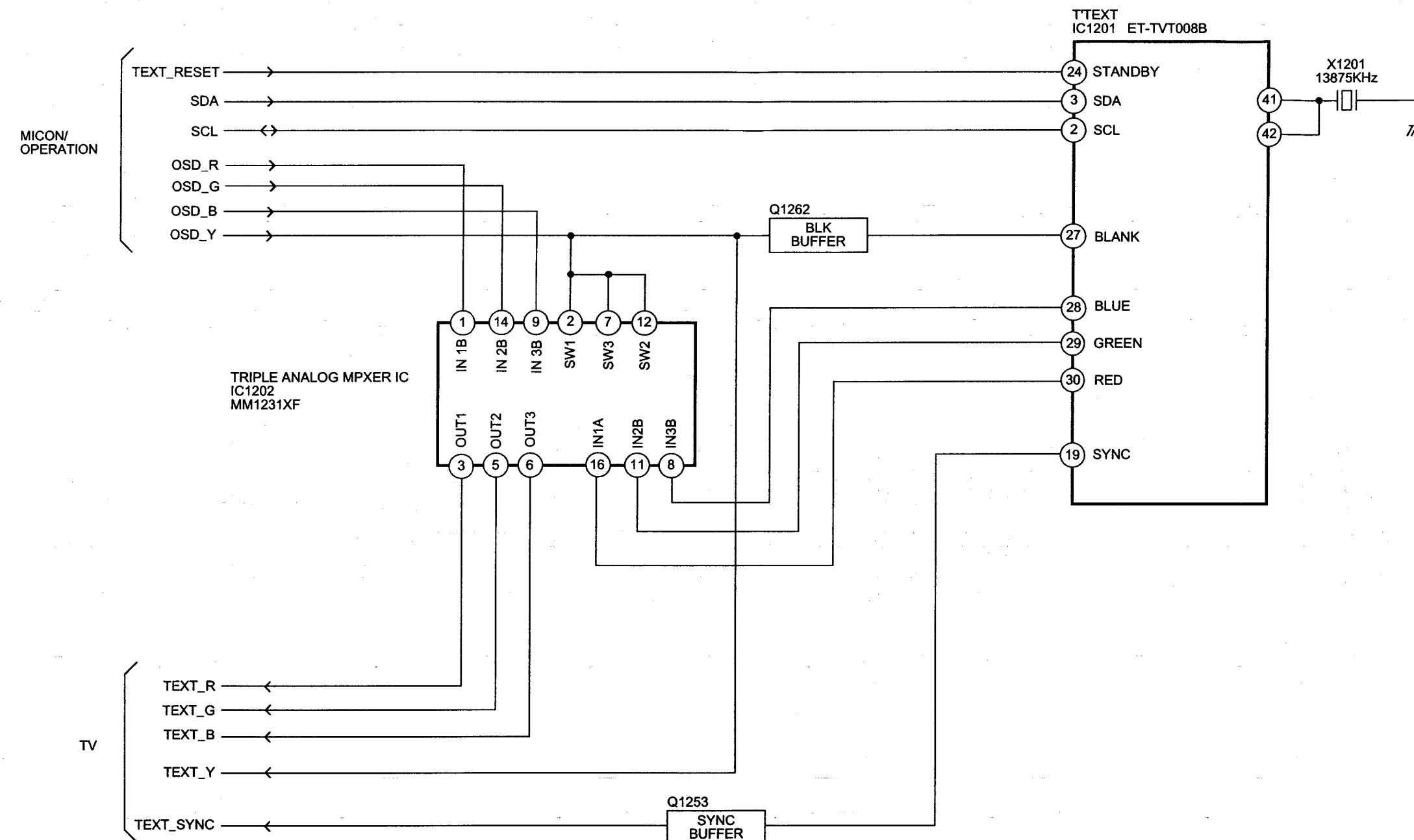
# Y/C/AUDIO/HEAD AMP/21PIN/IN/OUT BLOCK DIAGRAM



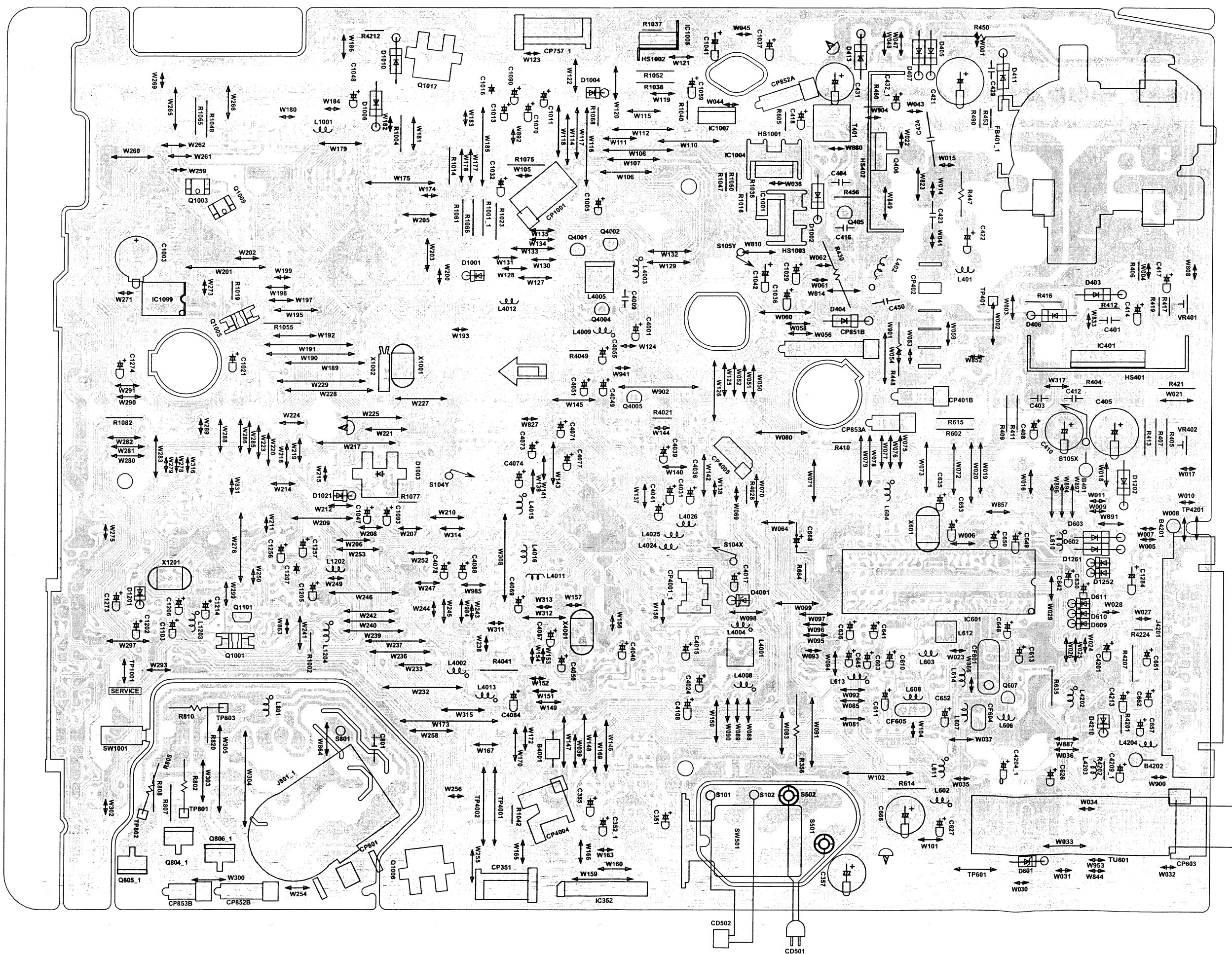
## MICON/OPERATION BLOCK DIAGRAM



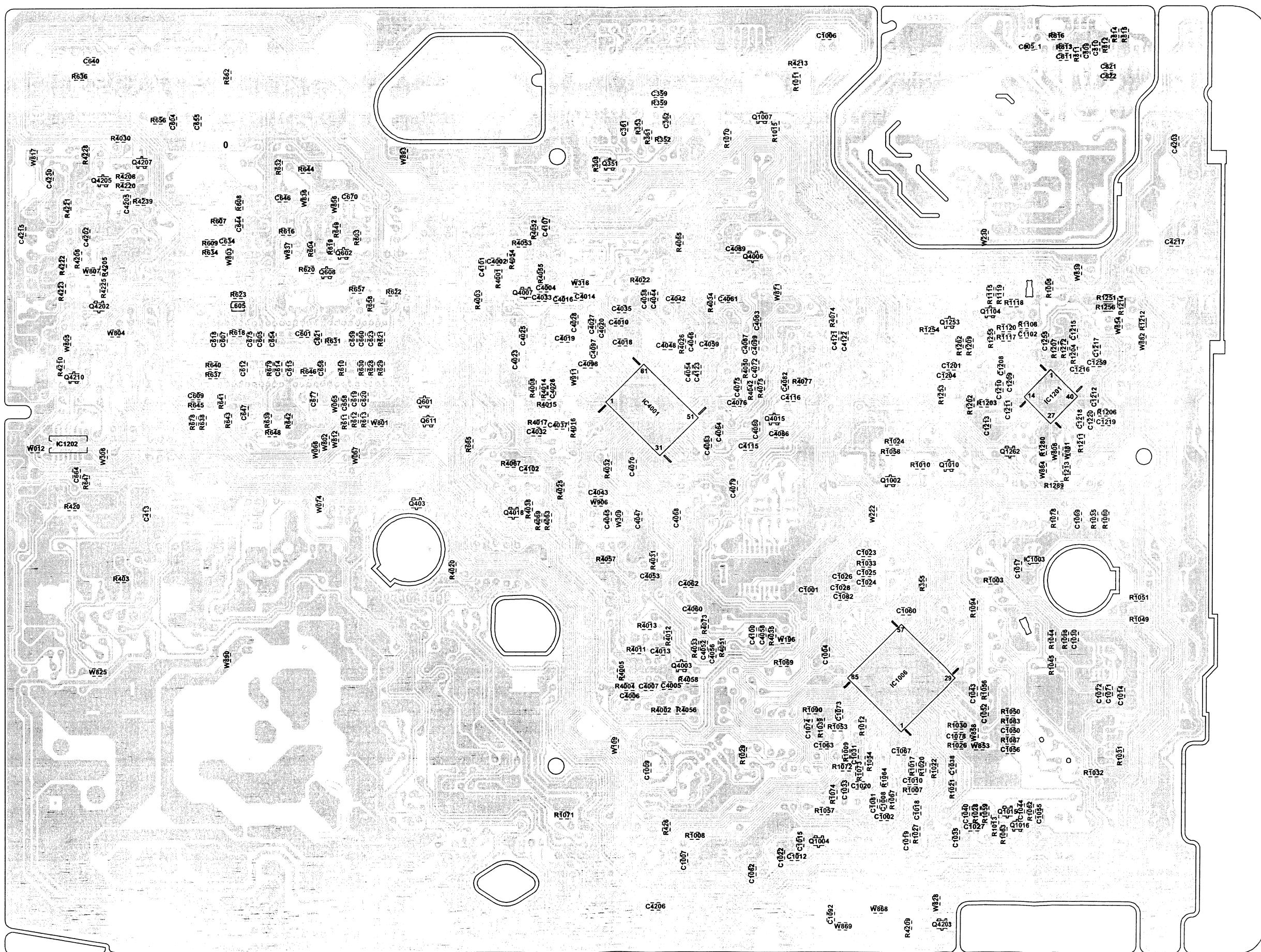
## T' TEXT BLOCK DIAGRAM



**PRINTED CIRCUIT BOARDS  
SYSCON/CRT/POWER SW (INSERTED PARTS)  
SOLDER SIDE**

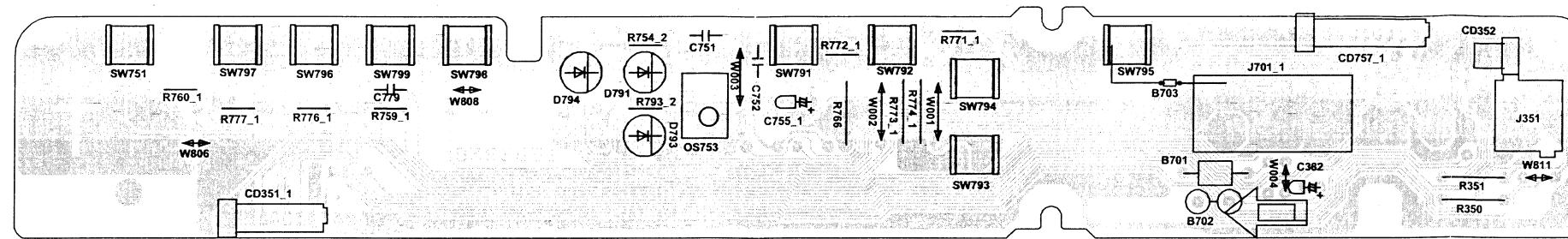


**PRINTED CIRCUIT BOARDS  
SYSCON/CRT (CHIP MOUNTED PARTS  
SOLDER SIDE**

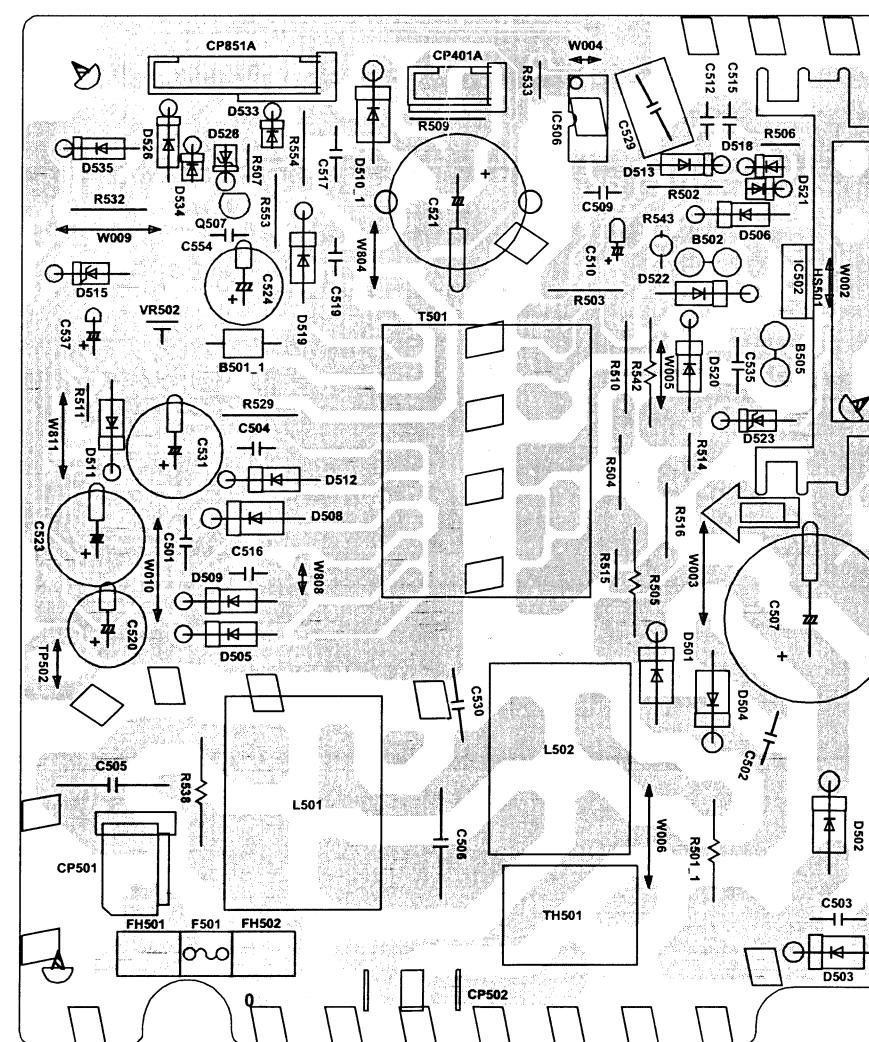


## PRINTED CIRCUIT BOARDS

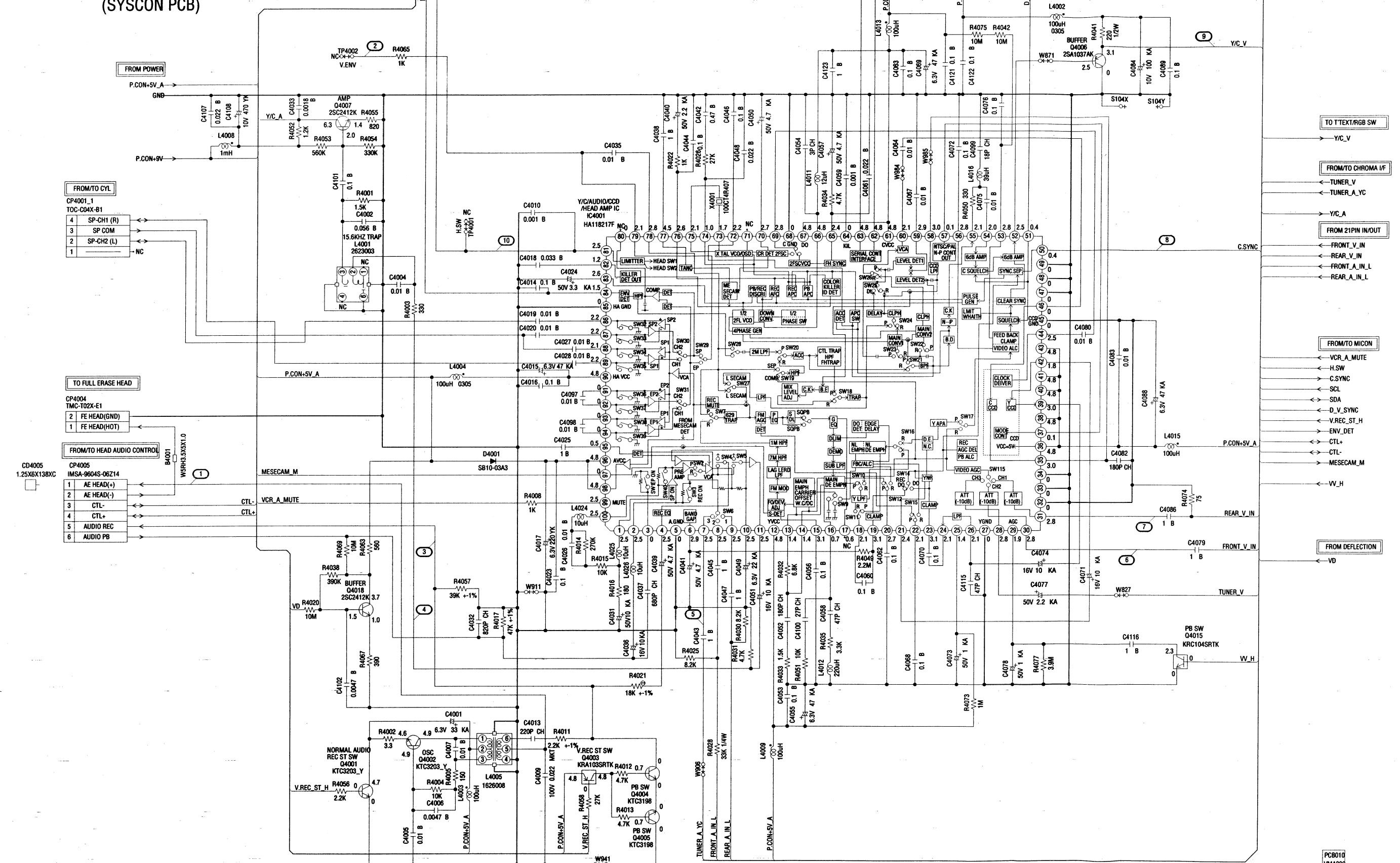
# **OPERATION SOLDER SIDE**



**POWER  
SOLDER SIDE**



# Y/C/AUDIO/HEAD AMP SCHEMATIC DIAGRAM (SYSCON PCB)

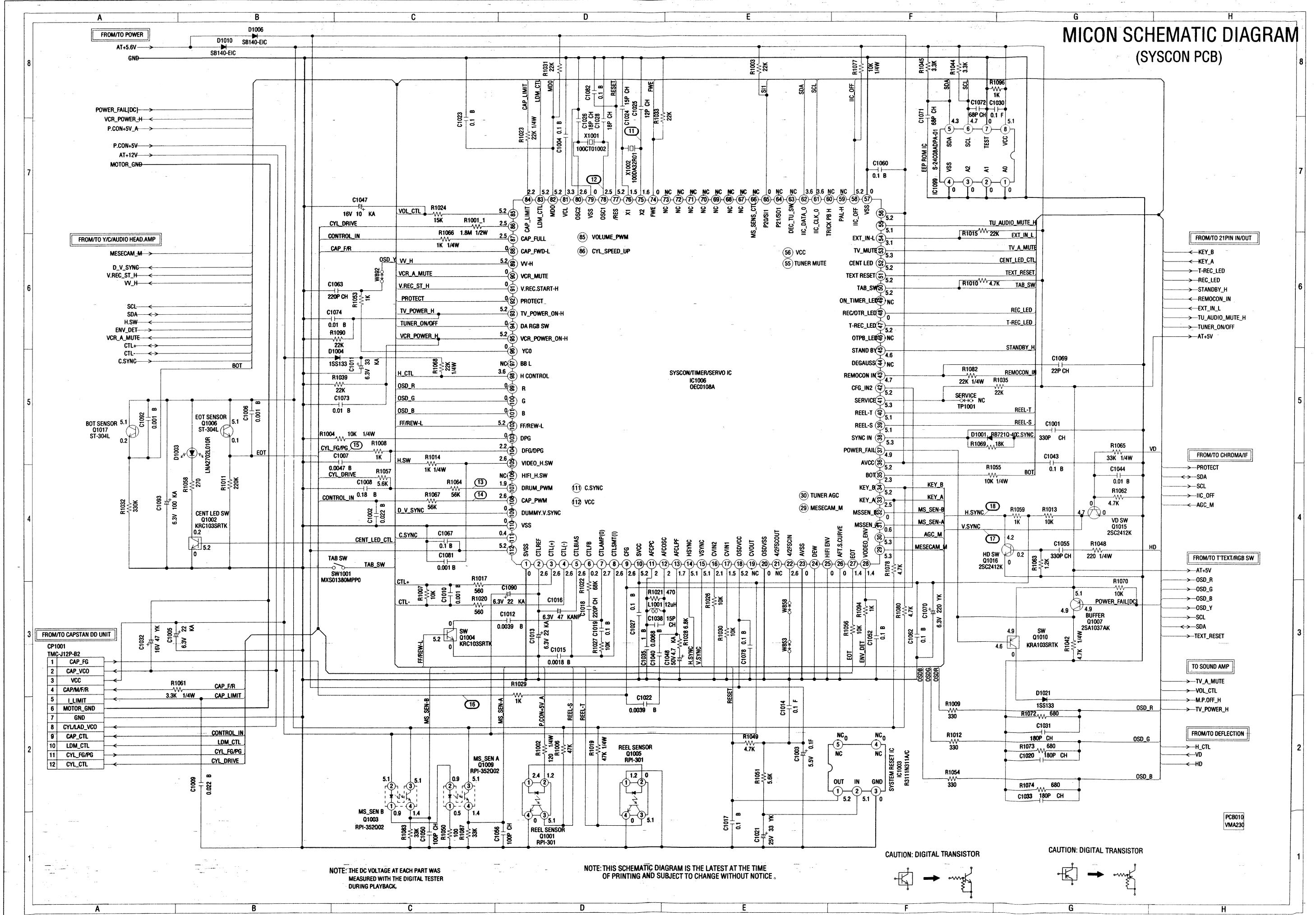


CAUTION: DIGITAL TRANSISTOR

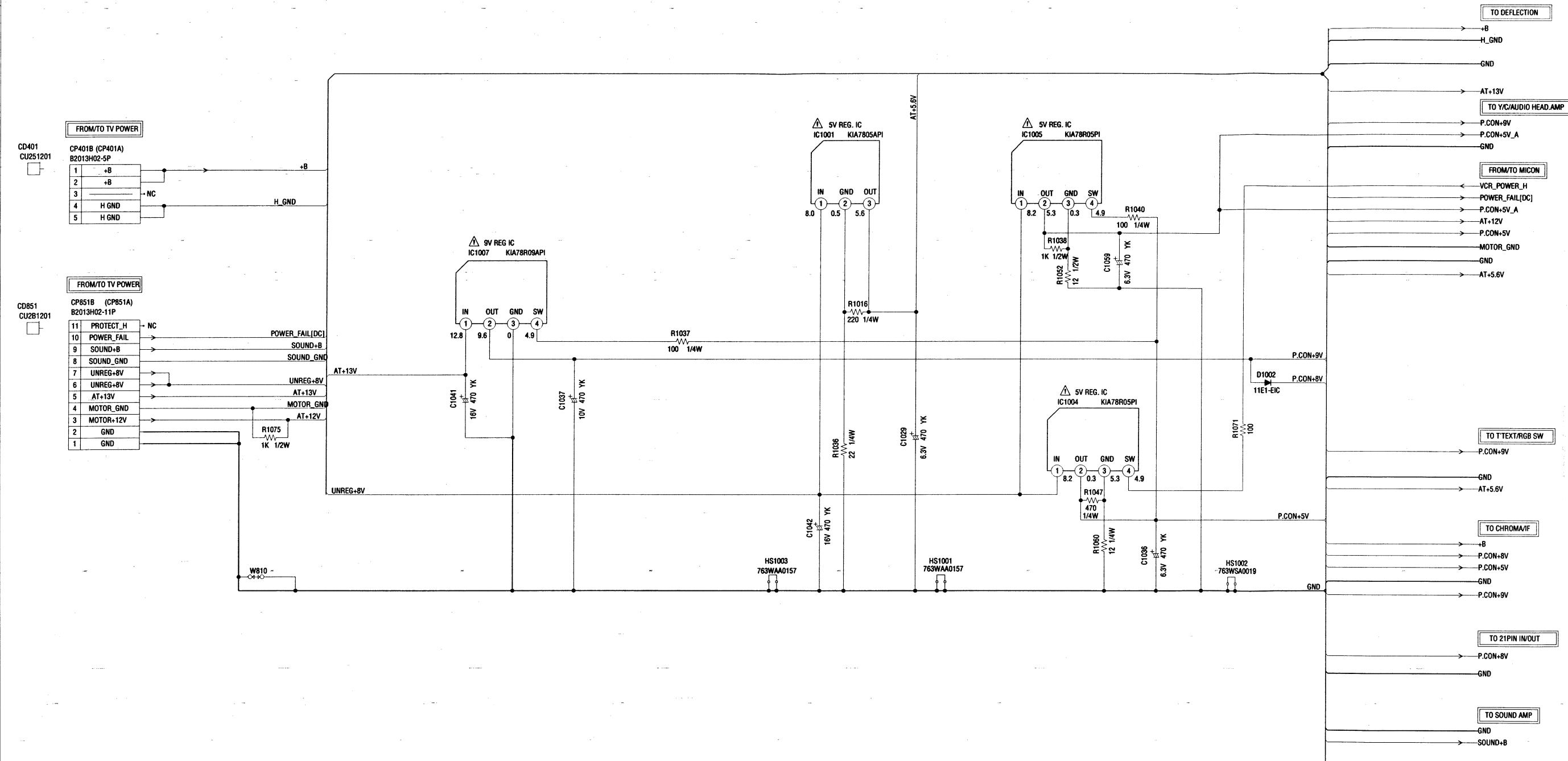
CAUTION: DIGITAL TRANSISTOR

PC8010  
VMA230

# MICON SCHEMATIC DIAGRAM (SYSCON PCB)



**POWER SCHEMATIC DIAGRAM**  
**(SYSCON PCB)**



ATTENTION: LES PIECES REPEREES PAR UN ETANT DANGEREUSES AU POINT DE VUE SECURITE N'UTILISER QUE CELLES DECrites DANS LA NOMENCLATURE DES PIECES.

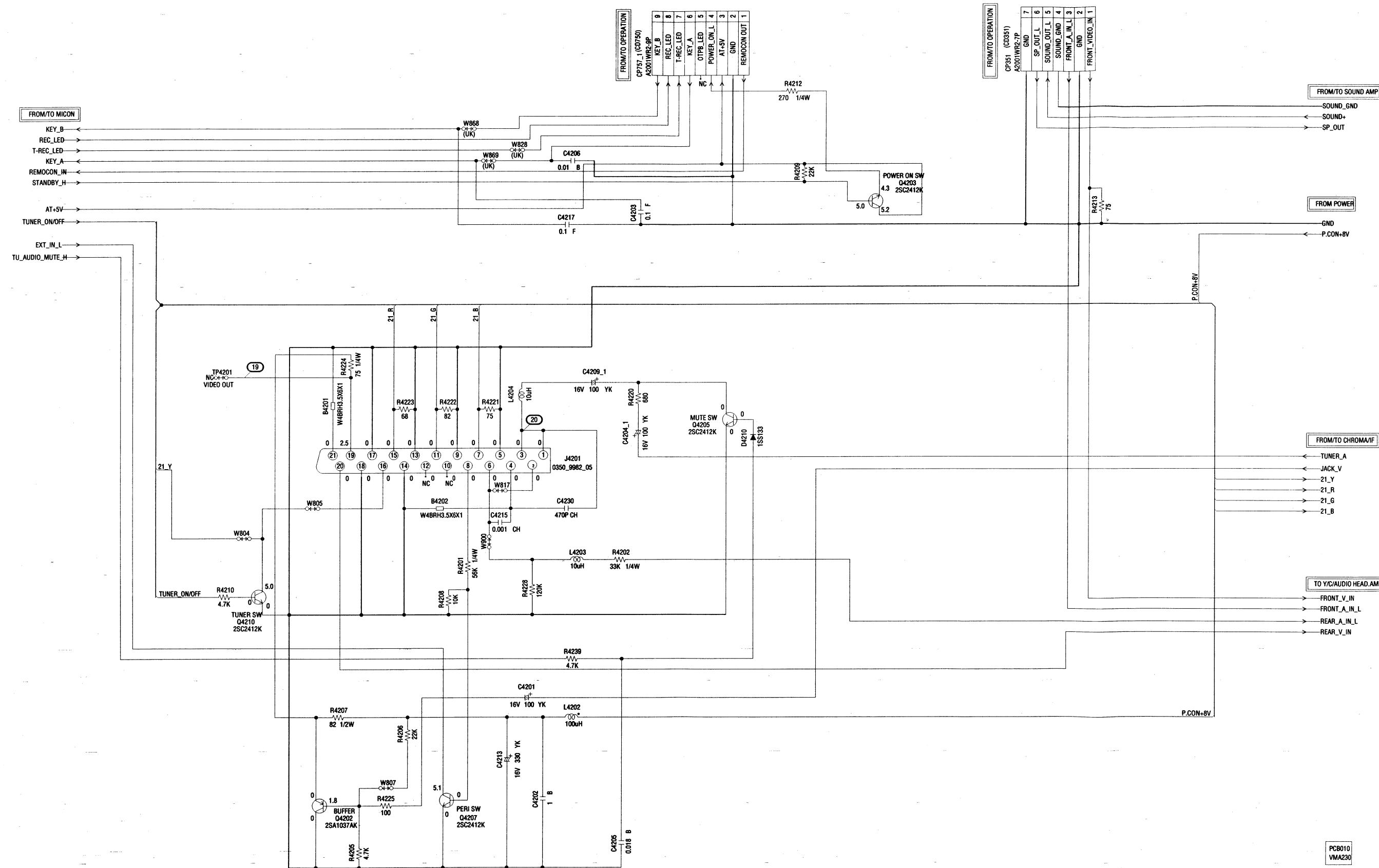
CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

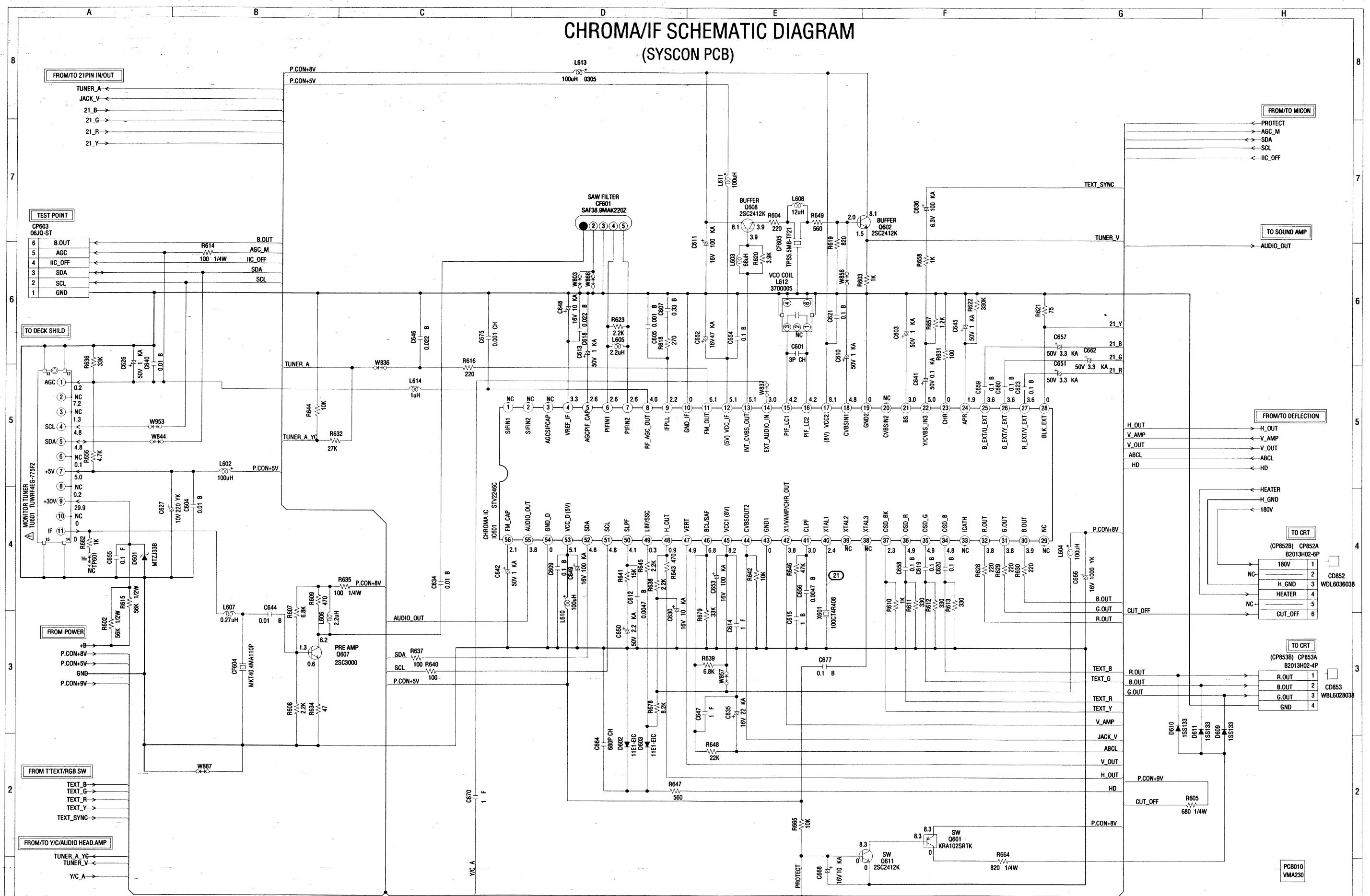
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

PC8010  
VMA230

**21PIN/IN/OUT SCHEMATIC DIAGRAM  
(SYSCON PCB)**

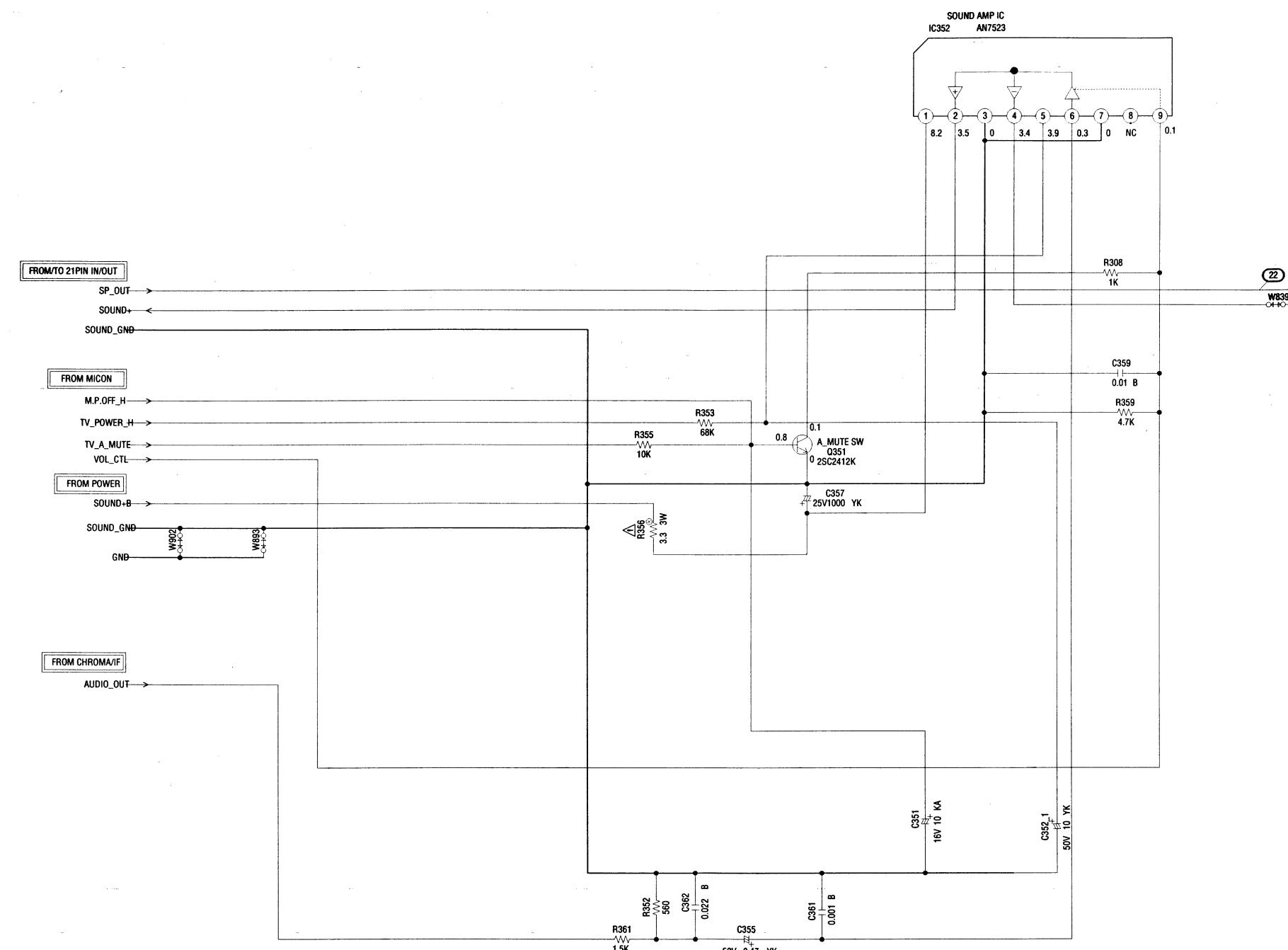


# CHROMA/IF SCHEMATIC DIAGRAM (SYSCON PCB)



# SOUND AMP SCHEMATIC DIAGRAM

(SYSCON PCB)



ATTENTION: LES PIECES REPARÉES PAR UN ETANT DANGEREUSES AU POINT DE VUE SECURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

PCB010  
VMA230

**T'TEXT/RGB SW SCHEMATIC DIAGRAM  
(SYSCON PCB)**

FROM Y/C/AUDIO HEAD.AMP

Y/C\_V →

FROM POWER

P.CON.9V →

AT+5.6V →

D1202 →

11E1-EIC →

C1284 →

6.3V 1000 YK →

GND →

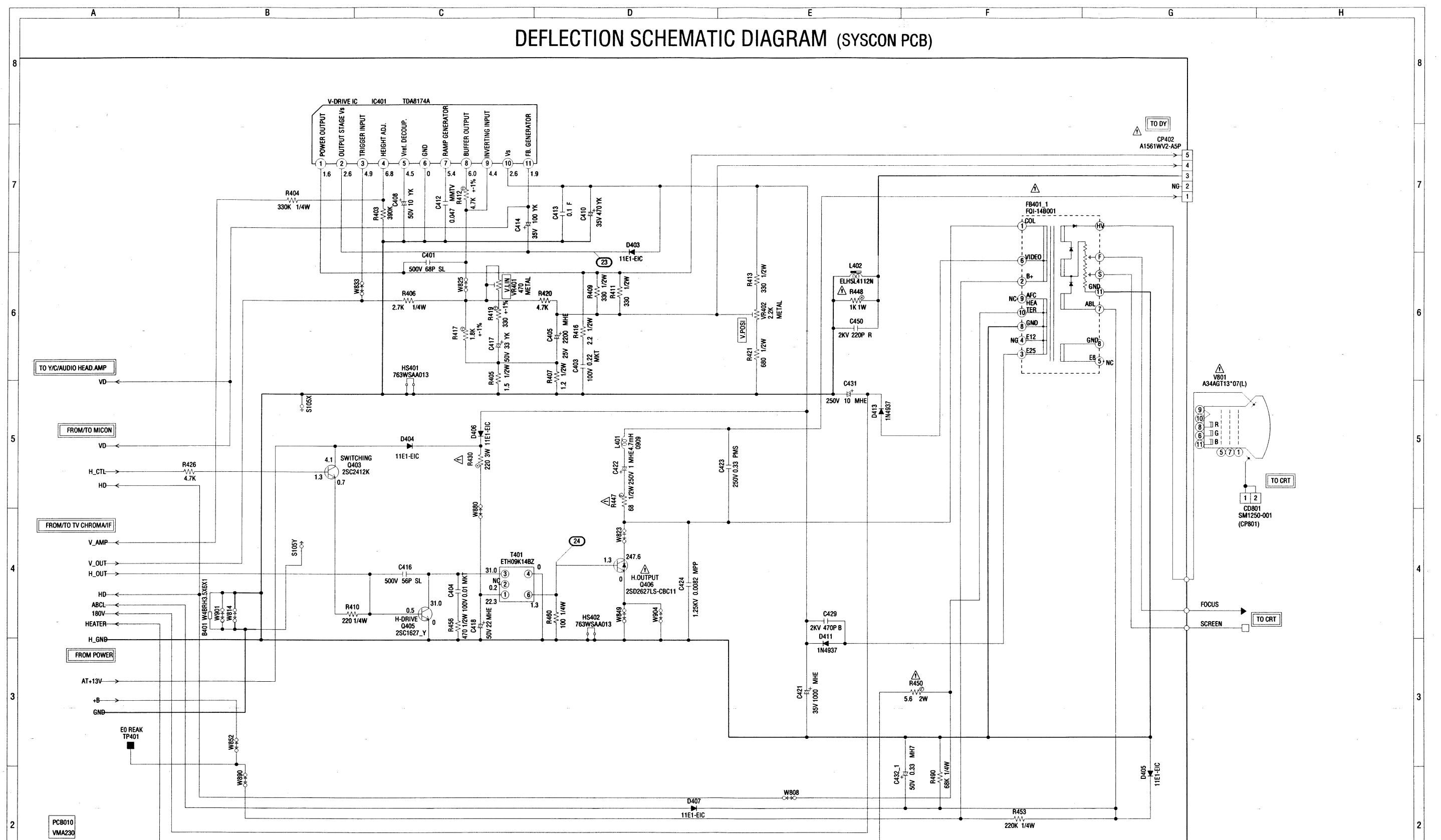
AT+5.6V →

D1202 →

11E1-EIC →

GND →

# DEFLECTION SCHEMATIC DIAGRAM (SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED  
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST  
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

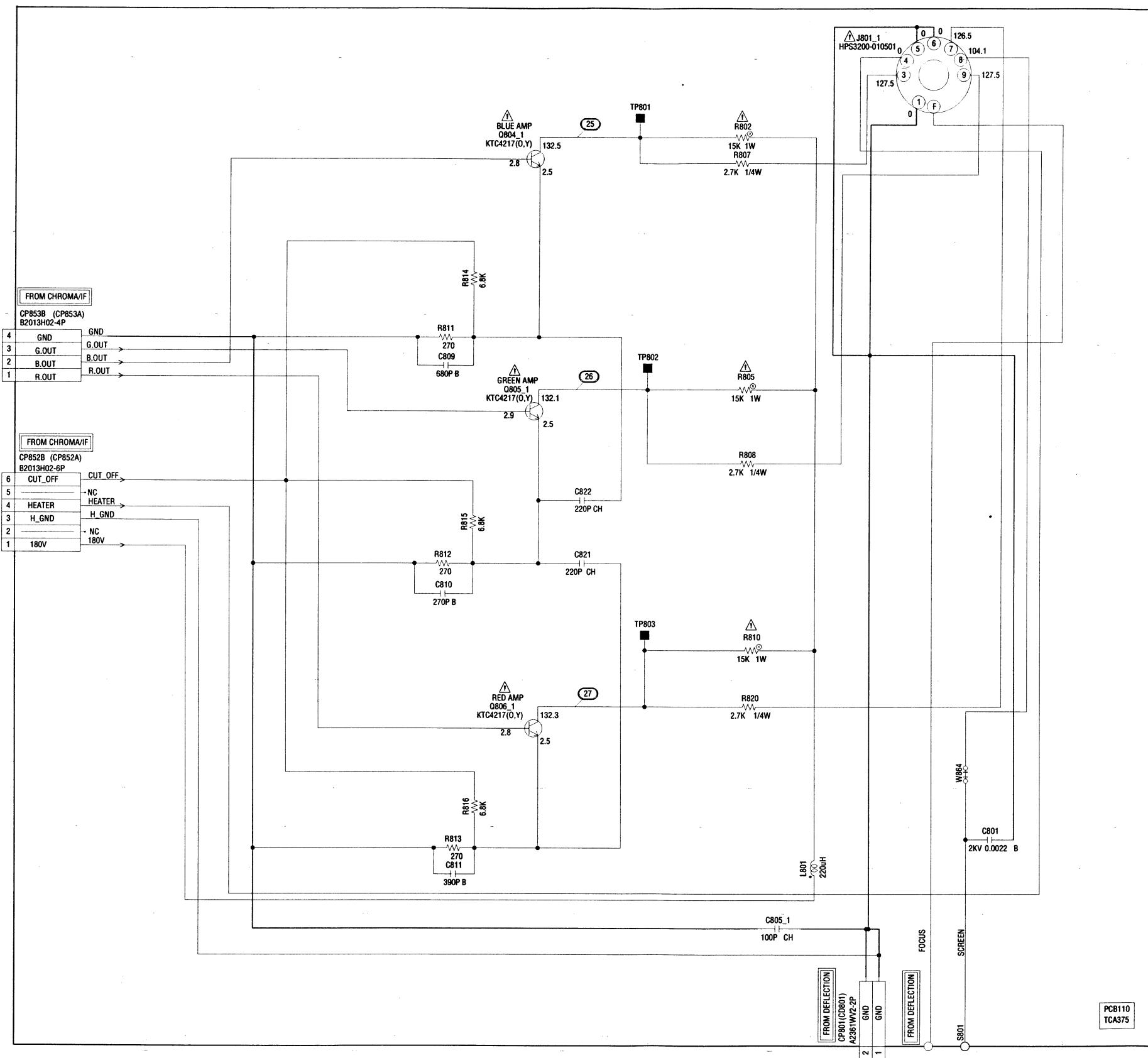
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME  
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.  
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP  
IS NON POLAR ONE.

CAUTION: SINCE THESE PARTS MARKED BY  $\triangle$  ARE  
CRITICAL FOR SAFETY, USE ONES  
DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIECES REPAREES PAR UN  $\triangle$  ETANT  
DANGEREUSES AU POINT DE VUE SECURITE  
N'UTILISER QUE CELLES DECrites  
DANS LA NOMENCLATURE DES PIECES.

# CRT SCHEMATIC DIAGRAM (CRT PCB)



**NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED  
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST  
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMA**

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME  
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

**CAUTION: SINCE THESE PARTS MARKED BY  ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.**

**ATTENTION: LES PIECES REPARÉES PAR UN ⚡ ETANT DANGEREUSES AU POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.**

G-17

— 1 —

B

2020-07-20

— 1 —

— 1 —

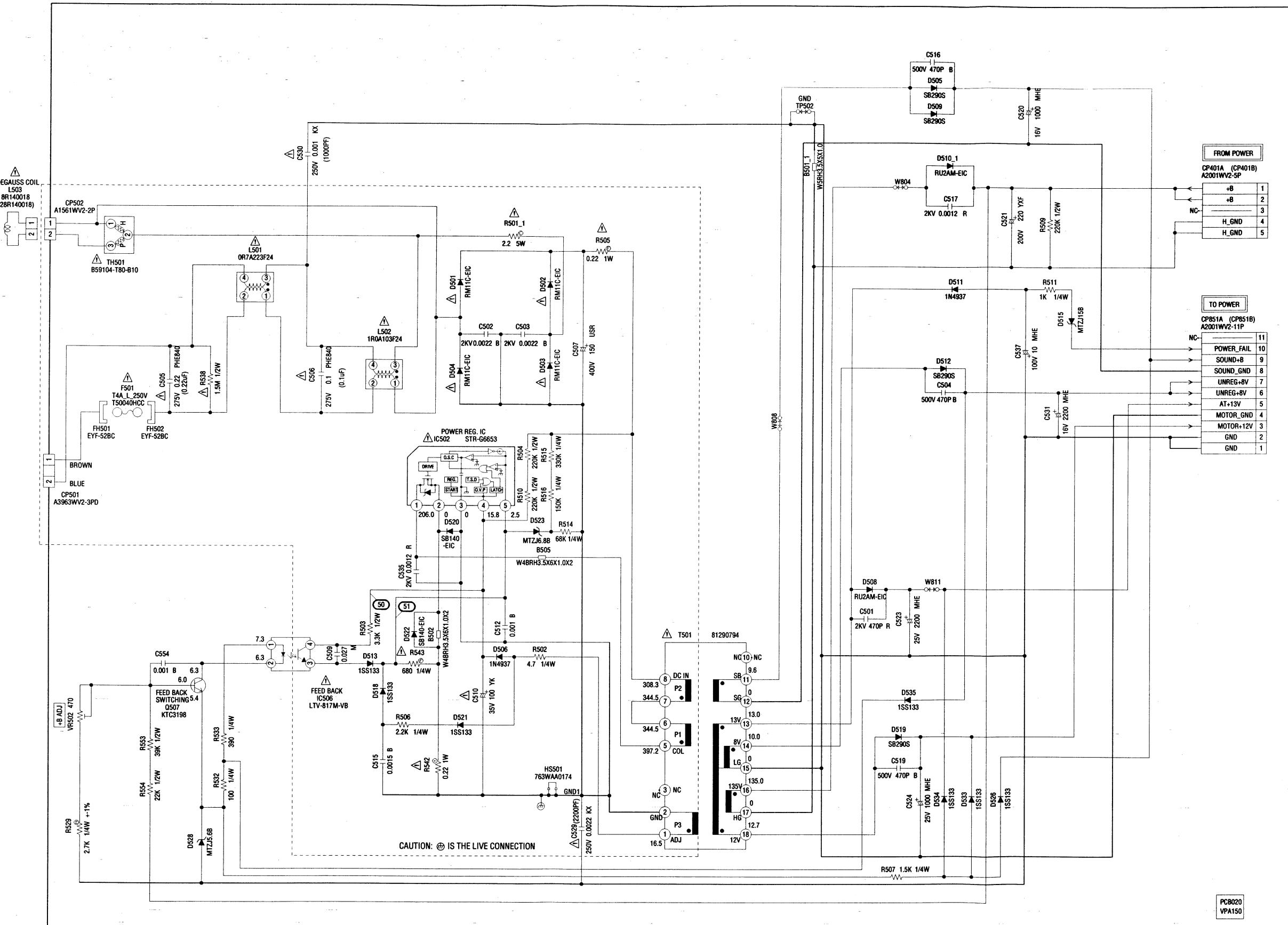
— 1 —

10

H

G-18

TV POWER SCHEMATIC DIAGRAM (POWER PCB)



**NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.  
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP  
IS NON POLAR ONE.**

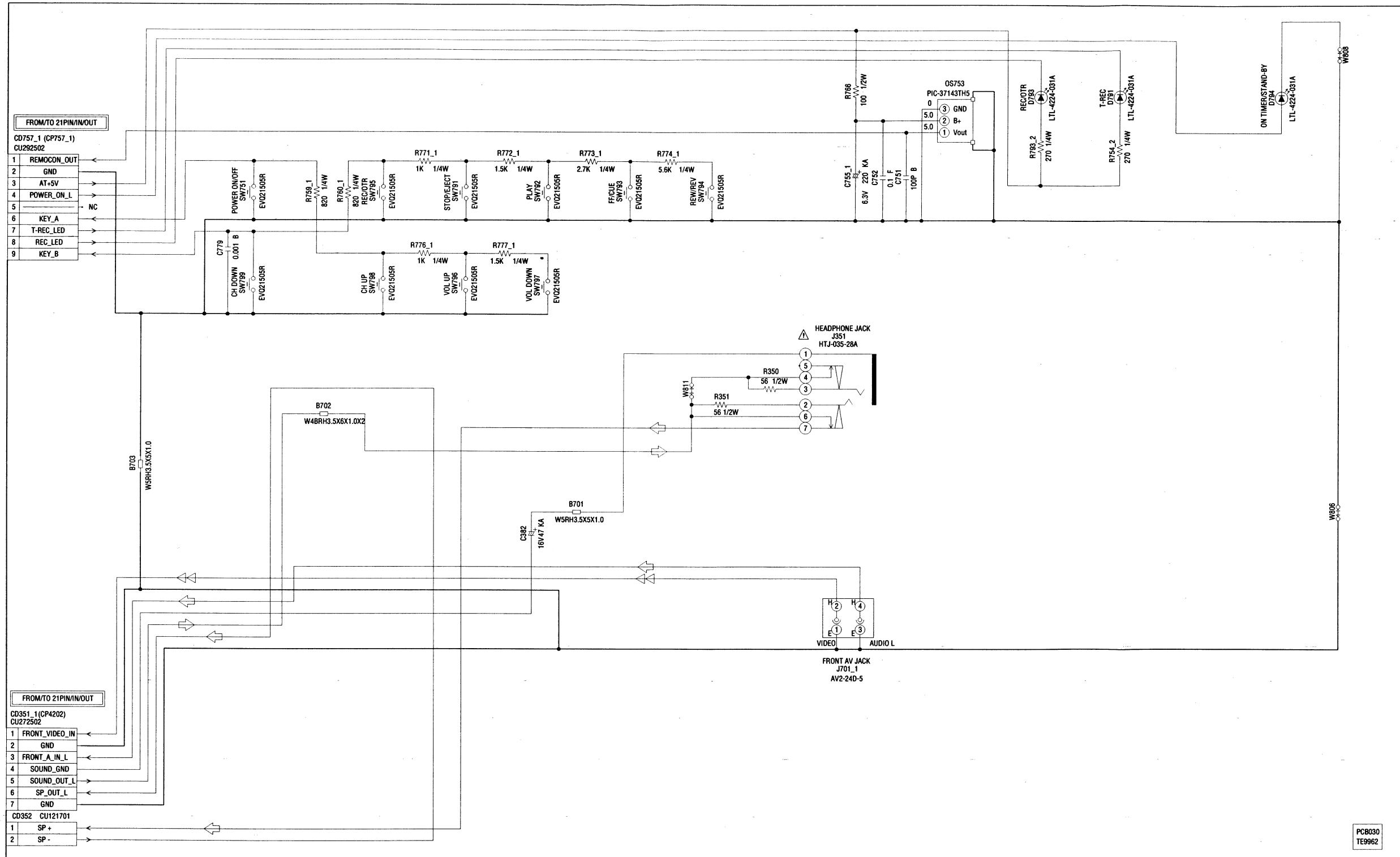
**NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED  
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST  
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NOR-**

**NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.**

**CAUTION: SINCE THESE PARTS MARKED BY  ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.**

**ATTENTION: LES PIECES REPARÉES PAR UN  ETANT DANGEREUSES EN POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.**

# **OPERATION SCHEMATIC DIAGRAM (OPERATION PCB)**



**NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED  
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST  
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.**

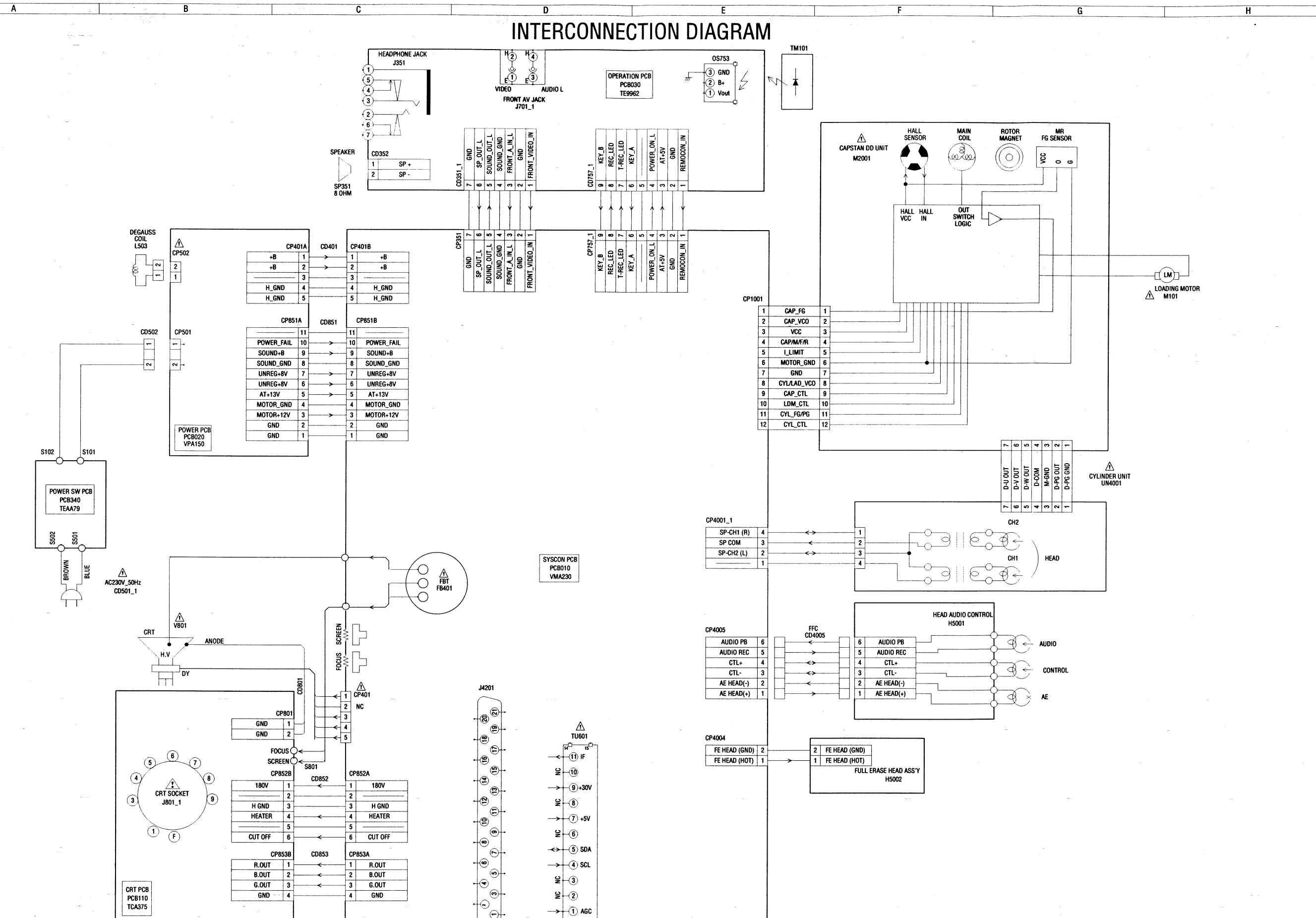
**NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.**

**CAUTION: SINCE THESE PARTS MARKED BY  ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.**

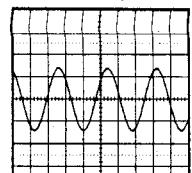
**ATTENTION: LES PIECES REPARÉES PAR UN  ETANT DANGEREUSES AU POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.**

 TUNER VIDEO SIGNAL  
 AUDIO SIGNAL

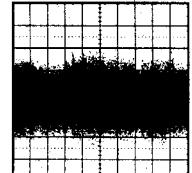
# INTERCONNECTION DIAGRAM



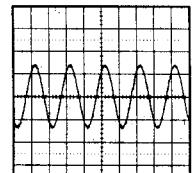
### Y/C/AUDIO/HEAD AMP



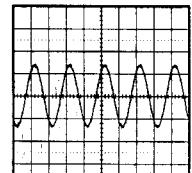
① REC  
20.0V 5 $\mu$ s/div



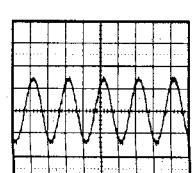
② PB  
50mV 5ms/div



③ REC  
20.0V 2ms/div

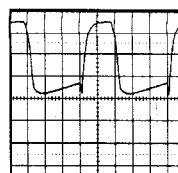


④ REC  
0.5V 0.5ms/div

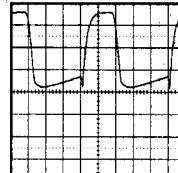


⑤ REC  
100mV 0.5ms/div

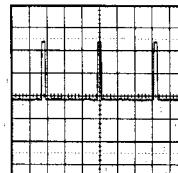
### WAVEFORMS



⑥ 1.0V 5 $\mu$ s/div



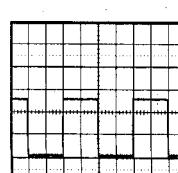
⑦ 1.0V 5 $\mu$ s/div



⑧ REC  
2.0V 20 $\mu$ s/div

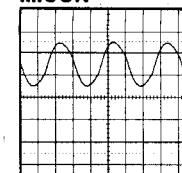


⑨ PB  
0.5V 10ms/div

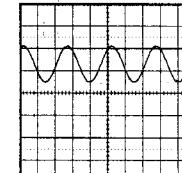


⑩ PB  
2.0V 10ms/div

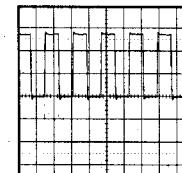
### MICON



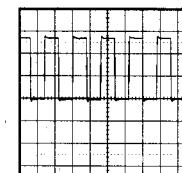
⑪ REC  
1.0V 10 $\mu$ s/div



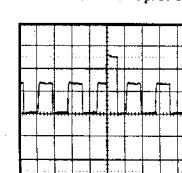
⑫ REC  
2.0V 1ms/div



⑬ PB  
2.0V 0.5 $\mu$ s/div

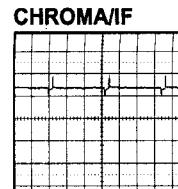


⑭ PB  
2.0V 0.5 $\mu$ s/div

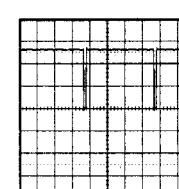


⑮ REC  
2.0V 1ms/div

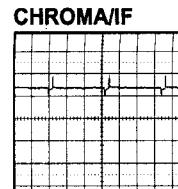
### WAVEFORMS



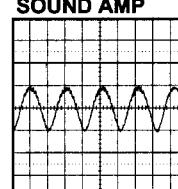
⑯ PB  
2.0V 5ms/div



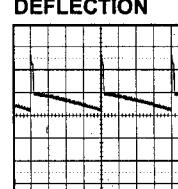
⑰ REC  
2.0V 5ms/div



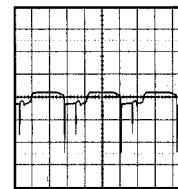
⑲ REC  
2.0V 20 $\mu$ s/div



⑳ REC  
0.5V 0.5ms/div

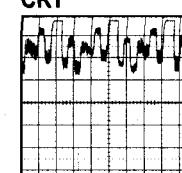


㉑ 20.0V 5ms/div

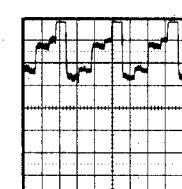


㉒ 5.0V 20 $\mu$ s/div

### CRT

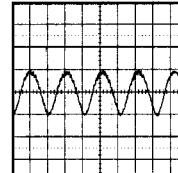


㉓ 50.0V 20 $\mu$ s/div

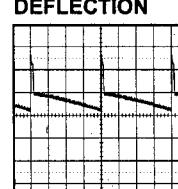


㉔ 50.0V 20 $\mu$ s/div

### SOUND AMP



㉕ REC  
0.5V 0.5ms/div

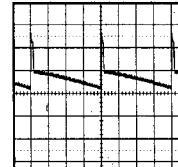


㉖ REC  
0.5V 0.5ms/div



㉗ 50.0V 20 $\mu$ s/div

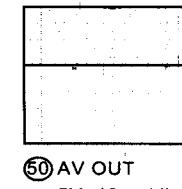
### DEFLECTION



㉘ REC  
2.0V 20 $\mu$ s/div

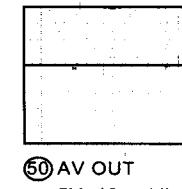


㉙ AV OUT  
200mV 20 $\mu$ s/div

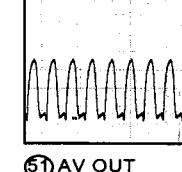


㉚ 5.0V 20 $\mu$ s/div

### TV POWER



㉛ AV OUT  
5V 10ms/div

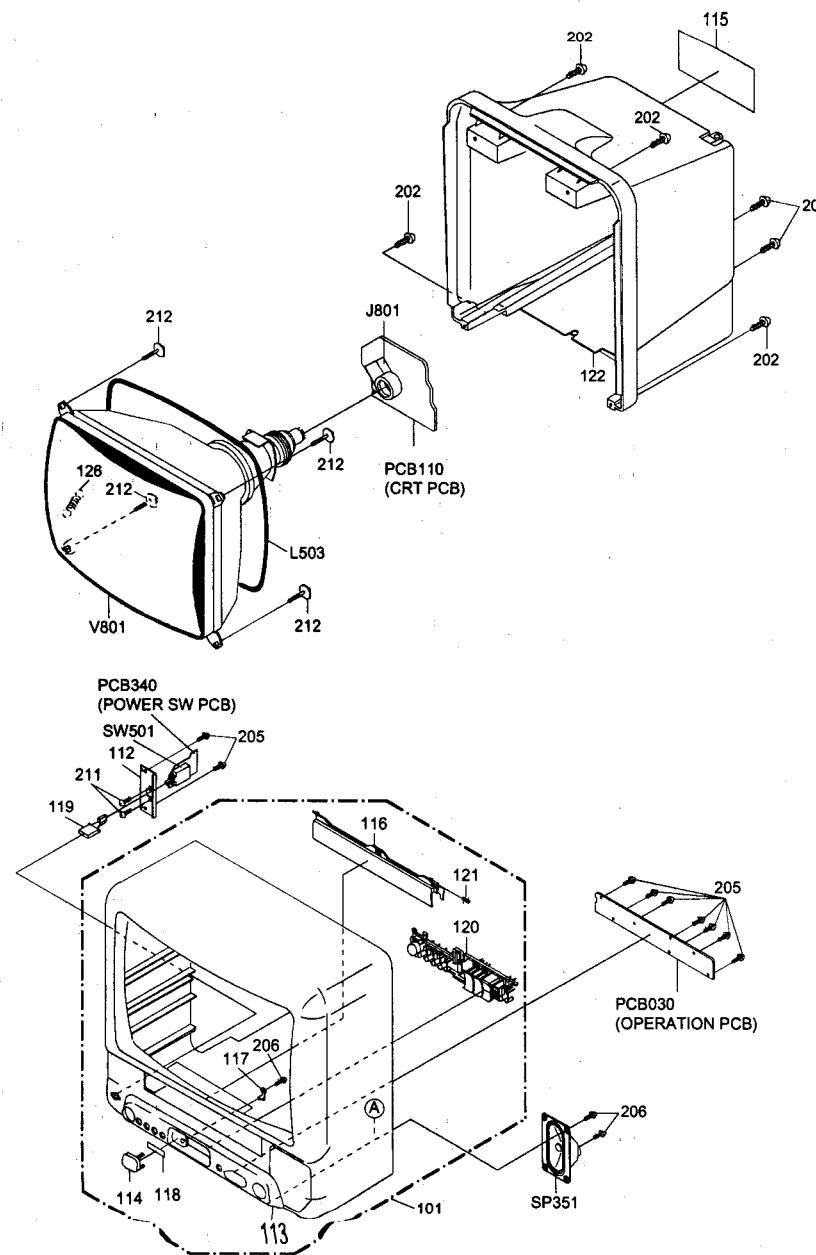


㉜ AV OUT  
5V 10ms/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

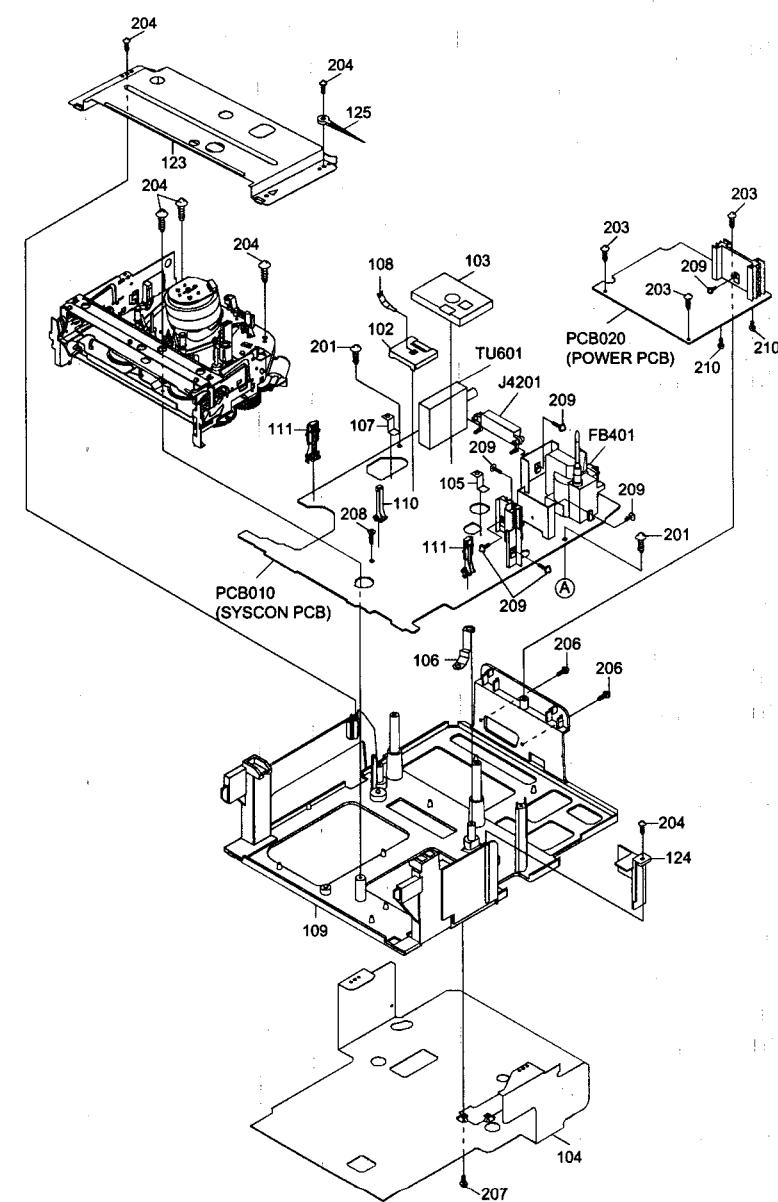
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

**MECHANICAL EXPLODED VIEW**



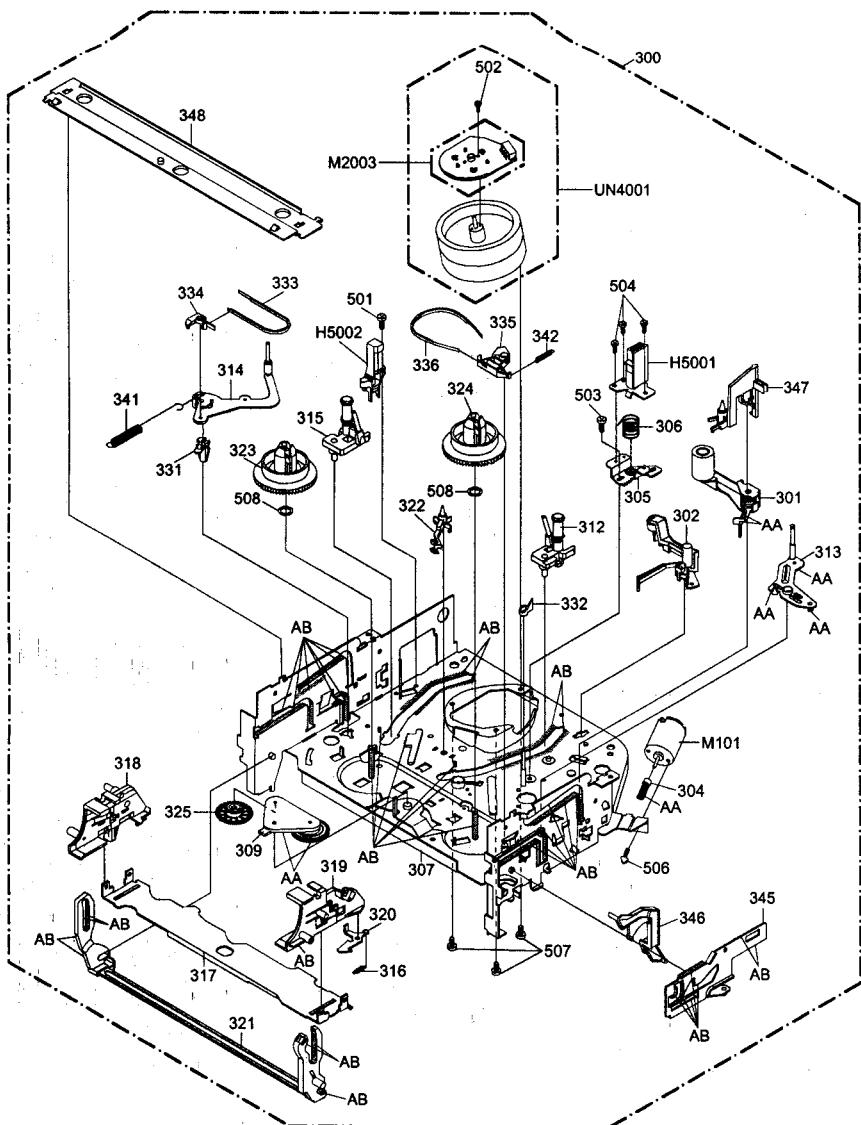
I-1

**MECHANICAL EXPLODED VIEW**



I-2

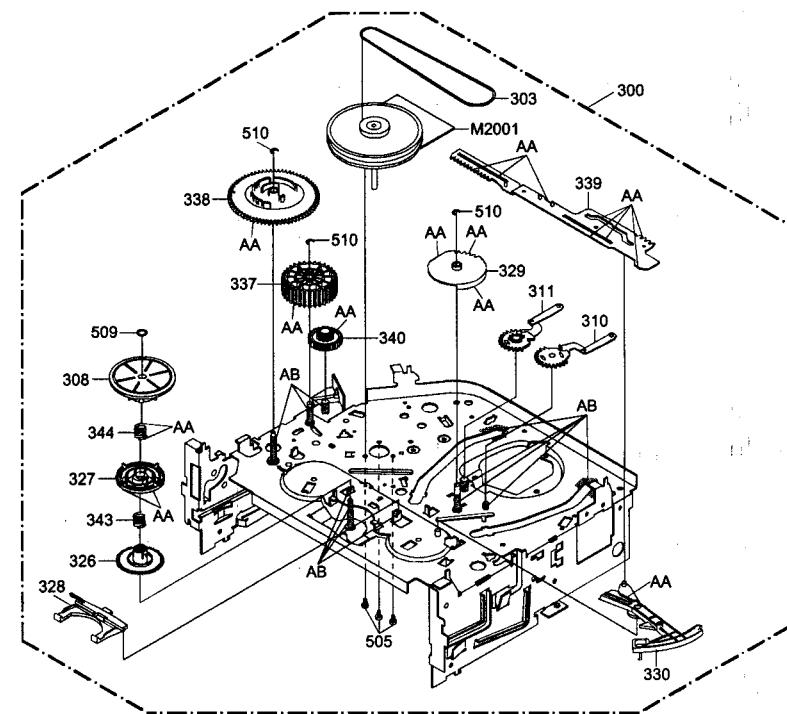
## **CHASSIS EXPLODED VIEW (TOP VIEW)**



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	MG-33	AB

**NOTE:** Applying positions AA and AB for the grease are displayed for this section.  
Check if the correct grease is applied for each position.

## **CHASSIS EXPLODED VIEW (BOTTOM VIEW)**



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	MG-33	AB

**NOTE:** Applying positions AA and AB for the grease are displayed for this section.  
Check if the correct grease is applied for each position.

## MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
101	A5A522N720K	CABINET,FRONT ASSY		
102	752WSA0230	SHIELD,CASE HEAD AMP		
103	752WSA0238	SHIELD,CASE		
104	752WSA0245	PLATE,SHIELD BOTTOM		
105	753WSA0118	PLATE,EARTH-SYSCON		
106	753WSA0120	PLATE,BOTTOM-EARTH		
107	753WSA0142	PLATE,EARTH-SYSCON		
108	753WUJA006	SPRING,EARTH HEAD AMP		
109	761WPA054	HOLDER DECK		
110	850P700037	HOLDER,LED		
111	850P700038	HOLDER,END SENSOR		
112	752WSA0259	PLATE,POWER SW		
113	701WPJB484	CABINET,FRONT		
114	711WPD4422	PLATE,FRONT		
115	722568A000	SHEET,RATING		
116	712WPJB236	FLAT,FLAP		
117	713WPA0079	GUIDE,REMOCOM		
118	7230006782	SHEET,LED		
119	735WPA0614	BUTTON,POWER		
120	735WPA507	BUTTON,FRAME		
121	743WKA0032	SPRING,FLAP(COMBO)		
122	702UPA0164	CABINET,BACK		
123	752WSA0240	PLATE,DECK-SHIELD		
124	755WPA0027	PLATE,COVER LIGHT		
125	8995034000	CORD CLIP UL CO.		
126	741WUJA0024	SPRING,EARTH		
201	8117540B04	SCREW,TAPPING(B0)	TRUSS	4x20
202	8117540A64	SCREW,TAPPING(B0)	TRUSS	4x16
203	8117540A04	SCREW,TAPPING(B0)	TRUSS	4x10
204	8110630A24	SCREW,TAP TITE(P)	BRAZIER	3x12
205	8110630A04	SCREW,TAP TITE(P)	BRAZIER	3x10
206	8110630B04	SCREW,TAP TITE(P)	BRAZIER	3x8
207	8110630D060	SCREW,TAP TITE(P)	BRAZIER	3x6
208	8110330B080	SCREW,TAP TITE(P)	FLAT	3x8
209	8109130A24	SCREW,TAP TITE(B)	WHT	3x10
210	8109630B02	SCREW,TAP TITE(B)	BRAZIER	3x8
211	810A130504	SCREW/WASHER(A)		M3x5
212	8121F50B84	SCREW,TAPPING(B0)	FAI20 FLAT	5x28
--	JB5X0200	POLYBAG		
--	J5A52201	INSTRUCTION BOOK		
--	J5860702	GUARANTEE CARD		
--	791MHA0002	LAMIFILM BAG		
--	792UHAA011	PACKAGE,TOP		
--	792UHAA012	PACKAGE,BOTTOM		
--	793UCDA858	GIFT BOX		
--	ASAS22N975	INSTRUCTION BOOK KIT		

## CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
300	A5A518N420A	DECK ASSY	301	A5A518N420A	DECK ASSY
302	850A400027	PINCH ROLLER BLOCK	303	850A500028	AHC ASSY
303	850P200290	BELT,CAPSTAN(S)	304	850P800581	WORM
305	850P500083	BASE,AC HEAD	306	850P800324	SPRING,AC HEAD
307	850A000459	MAIN CHASSIS ASS'Y	308	850A200089	CLUTCH ASSY
309	850A200090	ARM IDLER ASS'Y	310	850A300065	LOADING ARM S UNIT
311	850A300068	LOADING ARM T UNIT	312	850A400223	INCLINED BASE T UNIT 3S
313	850A400232	P5 ARM ASSY 2	314	850A400233	TENSION ARM ASS'Y (WT)
315	850A400231	INCLINED BASE S UNIT	316	850P800358	SPRING,LOCKER
316	850P800358	SPRING,LOCKER	317	850P900736	CASS,HOLDER
318	850P900748	CASS,SIDE L	319	850P900749	CASS,SIDE R
320	850P900739	LOCKER,R	321	850P900226	LINK UNIT
322	850P000496	POST,CASS GUIDE	323	850P200291	REELS (S)
323	850P200291	REELS (S)	324	850P200292	REEL,T (S)
325	850P200308	GEAR,IDLER	326	850P200311	GEAR,CLUTCH
327	850P200312	GEAR,COPPLING	328	850P200313	LEVER,CLUTCH
328	850P300194	GEAR,MAIN LOADING	329	850P300194	GEAR,MAIN LOADING
330	850P400490	LEVER,TENSION	331	850P400492	HOLDER,TENSION
331	850P400492	HOLDER,TENSION	332	850P400520	CAP,P4
332	850P400520	CAP,P4	333	850P400532	BAND,TENSION
333	850P400532	BAND,TENSION	334	850P400533	CONNECT,TENSION
334	850P400533	CONNECT,TENSION	335	850P600573	ARM,BRAKE T
335	850P600573	ARM,BRAKE T	336	850P600574	BAND,BRAKE T
336	850P600574	BAND,BRAKE T	337	850P600577	CAM,PINCH ROLLER
337	850P600577	CAM,PINCH ROLLER	338	850P600578	CAM,MAIN
338	850P600578	CAM,MAIN	339	850P600579	ROD,MAIN
340	850P600582	GEAR,JOINT	341	850P800322	SPRING,TENSION
341	850P800322	SPRING,TENSION	342	850P800350	SPRING,BRAKE T
342	850P800350	SPRING,BRAKE T	343	850P800355	SPRING,COUPLING
343	850P800355	SPRING,COUPLING	344	850P800356	SPRING,RING
344	850P800356	SPRING,RING	345	850P900743	LEVER,LINK
345	850P900743	LEVER,LINK	346	850P900744	LEVER,FLAP
346	850P900744	LEVER,FLAP	347	850P900745	CASS,OPENER
347	850P900745	CASS,OPENER	348	850P900748	BRACKET,TOP 3V

## ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION			
<b>RESISTORS</b>								
A R356	R3X28B3RJ	R,METAL 3.3 OHM 3W	D610	D1VT001330	DIODE,SILICON ISS133T-77			
A R430	R3X28B221U	R,METAL 220 OHM 3W	D611	D1VT001330	DIODE,SILICON ISS133T-77			
A R447	R65562880J	R,FUSE 68 OHM 1/2W	D791	0021E2Q150	LED LTL-4224-031A			
A R448	R3X181102J	R,METAL OXIDE 1K OHM 1W	D793	0021E2Q150	LED LTL-4224-031A			
A R450	R6556A5R6J	R,FUSE 5.6 OHM 2W	D794	0021E2Q150	LED LTL-4224-031A			
A R501	R5X2CD2R2J	R,CEMENT 2.2 OHM 5W	D1001	D2VT011E10	DIODE SCHOTTKY RB721Q-40 T-77			
A R506	R63581R22J	R,FUSE 0.22 OHM 1W	D1002	D2VT011E10	DIODE,SILICON 11E1-EIC			
A R534	R3X181125J	RC 1.5M OHM 1/2W	D1003	0010100322	INFRARED LED LNA2702L010R			
A R542	R3X181122J	R,METAL OXIDE 0.22 OHM 1W	D1004	D1VT001330	DIODE,SILICON ISS133T-77			
A R543	R6354J88J	R,FUSE 680 OHM 1/4W	D1006	D2WXS81400	DIODE SCHOTTKY SB140-EIC			
A R802	R3X181153J	R,METAL OXIDE 15K OHM 1W	D1010	D2WXS81400	DIODE SCHOTTKY SB140-EIC			
A R805	R3X181153J	R,METAL OXIDE 15K OHM 1W	D1021	D1VT001330	DIODE,SILICON ISS133T-77			
A R810	R3X181153J	R,METAL OXIDE 15K OHM 1W	D1202	D2VT011E10	DIODE,SILICON 11E1-EIC			
<b>CAPACITORS</b>								
C357	E02L03102M	CE 1000 UF 25V	D1252	D1VT001330	DIODE,SILICON ISS133T-77			
C405	E5EZP3222H	CE 2200 UF 25V	D1261	D1VT001330	DIODE,SILICON ISS133T-77			
C421	C03LR7Q22	CE 1000 UF 35V	D4001	D23U100343	DIODE,SCHOTTKY SB10-03A3			
C423	P4J7F334J	CMP 0.33 UF 250V PMS	D4210	D1VT001330	DIODE,SILICON ISS133T-77			
C424	P4NBFJ822H	CMP 0.0082UF 1.25KV or	<b>ICs</b>					
		0.0082UF 1.6KV ECWH	IC352	10FSP7230	IC AN7523			
C450	C03LR7H2K	CC 220 PF 2KV R	IC401	10WTD81740	IC TDA8174A			
C501	C03LR7Q22	CC 470 PF 2KV R	IC502	12GTH66530	IC STR-G6653			
C502	COHMB07H3K	CC 0.0022UF 2KV B	IC506	0002E00610	PHOTO COUPLER LTV-817M-VB			
A C504	P24T2B24M	CMP 0.0022UF 2KV B	IC601	00WE246C	IC STV2246C			
A C505	P24T2B104M	CMP 0.1 UF 275V PHE840	IC1001	11KA97050A	IC KIA7805API			
C507	E5D0H151M1	CE 150 UF 400V	IC1003	11KTJ3110A	IC R3111N311A-C-TR			
A C510	E02LU4101M	CE 100 UF 35V	IC1004	11KA98R050	IC KIA78R05PI			
C517	C03LR7B3K	CC 0.0012UF 2KV R	IC1005	11KA98R050	IC KIA78R05PI			
C521	E62NFC221M	CE 220 UF 200V	IC1006	15F50108A	IC DEC0108A			
C523	E5EZP3222M	CE 2200 UF 25V	IC1007	11KA98R09A	IC KIA78R09API			
C524	E5EZP3102M	CE 1000 UF 25V	IC1093	15A522N015	IC S-24C08AUPA-01			
A C529	CB3930M1H3M	CC 0.0022UF 250V	IC1201	1CFK000880	IC ET-TV7008B			
A C530	CB3930M13M	CC 0.001 UF 250V	IC1202	10UFD1310	IC MM1231XF			
A C531	E5EZP222M	CE 2200 UF 16V	IC4001	104F38217F	IC HA118217F			
<b>TRANSISTORS</b>								
D351	T8YJ2412K0	TRANSISTOR SILICON 2SC2412KT146 R,S	D403	T8YJ2412K0	TRANSISTOR SILICON 2SC2412KT146 R,S			
D405	TC5701627Y	TRANSISTOR SILICON 2SC1527_Y(TPE2)	D406	TD30026270	TRANSISTOR SILICON 2SD267LS-CBC11			
D507	TCATC31980	TRANSISTOR,SILICON KTC198-AT(Y,GR)	D507	TCATC31980	TRANSISTOR,SILICON KTC198-AT(Y,GR)			
D601	TPAA080501	COMPOUND TRANSISTOR KRA102SRTR	D602	T8YJ2412K0	TRANSISTOR SILICON 2SC2412KT146 R,S			
D607	TC3T030000	TRANSISTOR,SILICON 2SC3000-A/A	D608	T8YJ2412K0	TRANSISTOR SILICON 2SC2412KT146 R,S			
D611	T8YJ2412K0	TRANSISTOR SILICON 2SC2412KT146 R,S	D611	T8YJ2412K0	TRANSISTOR SILICON 2SC2412KT146 R,S			
A D604	TA0042170	TRANSISTOR SILICON KTC4217(O,Y)	A Q005	TA0042170	TRANSISTOR SILICON KTC4217(O,Y)			
A D612	TA0042170	TRANSISTOR SILICON KTC4217(O,Y)	A Q006	TA0042170	TRANSISTOR SILICON KTC4217(O,Y)			
A D613	D2WTRM11C0	DIODE SILICON RM11C-EIC	A Q001	0002700590	PHOTO COUPLER RPI-301			
A D614	D2WTRM11C0	DIODE SILICON RM11C-EIC	A Q002	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTR			
A D615	D2WTRM11C0	DIODE SILICON RM11C-EIC	A Q003	0002700670	PHOTO COUPLER RPI-352Q02			
A D616	D2WTRM11C0	DIODE SILICON RM11C-EIC	A Q004	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTR			
D503	D2WXB29050	DIODE SILICON SB2905	A Q005	0002700590	PHOTO COUPLER RPI-301			
D506	D2WXN49370	DIODE SILICON 1N4937	A Q006	0000000390	PHOTO TRANSISTOR ST-304L			
D507	D2WXN49370	DIODE SILICON 1N4937	A Q007	T8YJ1037K0	TRANSISTOR,SILICON 2SA1037AKT146,R,S			
D508	D2WXN49370	DIODE SILICON 1N4937	A Q009	0002700670	PHOTO COUPLER RPI-352Q02			
D509	D2WXB29050	DIODE SILICON SB2905	A Q100	0000000390	PHOTO TRANSISTOR ST-304L			
D510	D2WXR22A0M	DIODE SILICON RU2AM-EIC	A Q101	0000000390	PHOTO TRANSISTOR ST-304L			
D511	D2WXR22A0M	DIODE SILICON RU2AM-EIC	A Q102	TPAAC05002	COMPOUND TRANSISTOR KRA103SRTR			
D512	D2WXN49370	DIODE SILICON 1N4937	A Q103	0002700670	PHOTO COUPLER RPI-352Q02			
D513	D2WXB29050	DIODE SILICON SB2905	A Q104	0000000390	PHOTO TRANSISTOR ST-304L			
D515	D2WXN49370	DIODE SILICON 1N4937	A Q105	0002700590	PHOTO COUPLER RPI-301			
D516	D2WXN49370	DIODE SILICON 1N4937	A Q106	0000000390	PHOTO TRANSISTOR ST-304L			
D517	D2WXB29050	DIODE SILICON SB2905	A Q107	T8YJ1037K0	TRANSISTOR,SILICON 2SA1037AKT146,R,S			
D518	D2WXB29050	DIODE SILICON SB2905	A Q108	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S			
D519	D2WXB29050	DIODE SILICON SB2905	A Q109	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S			
D520	D2WXB29050	DIODE SILICON SB2905	A Q123	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S			
D521	D1VT001330	DIODE,SILICON 1SS133T-77	A Q126	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S			
D522	D2WXB1400	DIODE,SCHOTTKY SB140-EIC	A Q4001	TCATC31980	TRANSISTOR,SILICON KTC3198-AT(Y,GR)			
D523	D2WXB1400	DIODE,SCHOTTKY SB140-EIC	A Q402	TCATC3203	TRANSISTOR,SILICON KTC3203-Y_AT			
D524	D2WXB1400	DIODE,SCHOTTKY SB140-EIC	A Q403	TPAAC05002	COMPOUND TRANSISTOR KRA103SRTR			
D525	D1VT001330	DIODE,SILICON 1SS133T-77	A Q404	TCATC31980	TRANSISTOR,SILICON KTC3198-AT(Y,GR)			
D526	D2WXB1400	DIODE,SCHOTTKY SB140-EIC	A Q405	TCATC31980	TRANSISTOR,SILICON KTC3198-AT(Y,GR)			
D527	D1VT001330	DIODE,SILICON 1SS133T-77	A Q406	T8YJ1037K0	TRANSISTOR,SILICON 2SA1037AKT146,R,S			
D528	D1VT001330	DIODE,SILICON 1SS133T-77	A Q407	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S			
D529	D1VT001330	DIODE,SILICON 1SS133T-77	A Q408	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S			
D530	D1VT001330	DIODE,SILICON 1SS133T-77	A Q409	TNAAD05001	COMPOUND TRANSISTOR KRC104SRTR			
D531	D1VT001330	DIODE,SILICON 1SS133T-77	A Q410	TCATC3203	TRANSISTOR,SILICON KTC3203_Y_AT			
D532	D2WXB1400	DIODE,SCHOTTKY SB140-EIC	A Q420	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S			
D533	D1VT001330	DIODE,SILICON 1SS133T-77	A Q420	T8YJ1037K0	TRANSISTOR,SILICON 2SA1037AKT146,R,S			
D534	D1VT001330	DIODE,SILICON 1SS133T-77	A Q420	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S			
D535	D1VT001330	DIODE,SILICON 1SS133T-77	A Q420	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S			
D601	D7U033018	DIODE,ZENER MTZJ6.88 T-77	A Q420	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S			
D602	D2WT011E10	DIODE,SILICON 11E1-EIC	A Q420	T8YJ1037K0	TRANSISTOR,SILICON 2SA1037AKT146,R,S			
D603	D2WT011E10	DIODE,SILICON 11E1-EIC	A Q420	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S			
D604	D1VT001330	DIODE,SILICON 1SS133T-77	A Q420	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S			
D605	D1VT001330	DIODE,SILICON 1SS133T-77	A Q420	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S			
D606	D1VT001330	DIODE,SILICON 1SS133T-77	A Q420	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S			
D607	D1VT001330	DIODE,SILICON 1SS133T-77	A Q420	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S			
D608	D1VT001330	DIODE,SILICON 1SS133T-77	A Q420	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S			
D609	D1VT001330	DIODE,SILICON 1SS133T-77	A Q420	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S			

## ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION	
<b>TRANSISTORS</b>						
O4207	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S	VR401	V1262Q2BT2	VOLUME,SEMI FIXED RH064CS2R	
O4210	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S	VR402	V1262H3BT2	VOLUME,SEMI FIXED RH064CJ3R	
<b>COILS &amp; TRANSFORMERS</b>						
L401	021679472K	COIL 4.7 MH	VR502	V1163Q2BT2	VOLUME,SEMI FIXED EVNCYAA03BQ2	
L402	0221000013	COIL,LINEARITY ELH5L4112N	or			
L501	0297000001	COIL,LINEARITY 0R7A22C24	or			
L502	0297000092	COIL,LINEARITY RB-20871	or			
L503	028R140018	COIL,DEGAUSS 8R140018	or			
L602	021375101K	COIL 100 UH	or			
L603	021LA6860K	COIL 68 UH	or			
L604	021673101K	COIL 100 UH	or			
L605	0216512R22K	COIL 2.2 UH	or			
L606	021LA682R2K	COIL 2.2 UH	or			
L607	021LA6R27M	COIL 0.27 UH	or			
L608	021LA6120K	COIL 12 UH	or			
L609	0216770005	COIL,VIDEO IFT 3700005	or			
L610	0216770101	COIL,VIDEO IFT 3700005	or			
L611	0216770101	COIL,VIDEO IFT 3700005	or			
L612	0216770101	COIL,VIDEO IFT 3700005	or			
L613	0216770101	COIL,VIDEO IFT 3700005	or			
L614	021LA61R0M	COIL 12 UH	or			
L615	021673221K	COIL 220 UH	or			
L616	021673101K	COIL 12 UH	or			
L617	021673101K	COIL 10 UH	or			
L618	021673101K	COIL 10 UH	or			
L619	021673101K	COIL 10 UH	or			
L620	021673101K	COIL 10 UH	or			
L621	021673101K	COIL 10 UH	or			
L622	021673101K	COIL 10 UH	or			
L623	021673101K	COIL 10 UH	or			
L624	021673101K	COIL 10 UH	or			
L625	021673101K	COIL 10 UH	or			
L626	021673101K	COIL 10 UH	or			
L627	021673101K	COIL 10 UH	or			
L628	021673101K	COIL 10 UH	or			
L629	021673101K	COIL 10				

## ELECTRICAL REPLACEMENT PARTS LIST

RESISTOR  
RC..... CARBON RESISTOR

CAPACITORS  
CC..... CERAMIC CAPACITOR  
CE..... ALUM ELECTROLYTIC CAPACITOR  
CP..... POLYESTER CAPACITOR  
CPP..... POLYPROPYLENE CAPACITOR  
CPL..... PLASTIC CAPACITOR  
CMP..... METAL POLYESTER CAPACITOR  
CMPL..... METAL PLASTIC CAPACITOR  
CMPP..... METAL POLYPROPYLENE CAPACITOR

SPEC.NO.	M5A5-22N
O/R NO.	U1Y5502